THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

PULP & PAPER

Pulp & Paper

MAY VOL. 26 NO. 5

In this issue: ...new woodroom layout and air-conditioned control... To more liberal pulp... Openings and modern dishwashing are notable construction features... story beginning on Page 34.

SERIES ARTICLE THIS MONTH: INTERVIEW WITH ... PLANTS PLANS. SEMI-CHEMICAL PULPING — BY MADISON'S JOHN ... BY BYRON BAKER. KALAMAZOO 50-TON PLANT. MAINE EXPERIMENTAL BOARDS. NEW ... PULP SYSTEM.

famous blades

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Strong blades for powerful warriors

The two-handed swords of the ancient Crusaders were tremendous weapons. The blades approached six feet in length and were double-edged.

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Heppenstall has been producing Knives to the highest standards for many years. Made from high quality, electric induction steels, Heppenstall's long-lasting Chipper Knives have won recognition throughout the pulp and paper industry.

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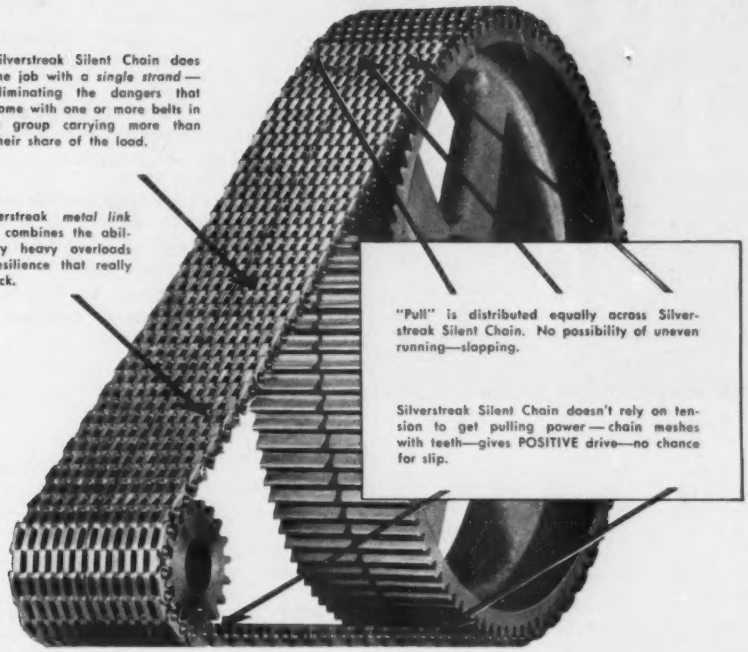
Silverstreak Silent Chain does the job with a *single strand* — eliminating the dangers that come with one or more belts in a group carrying more than their share of the load.
Husky Silverstreak *metal link* construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.
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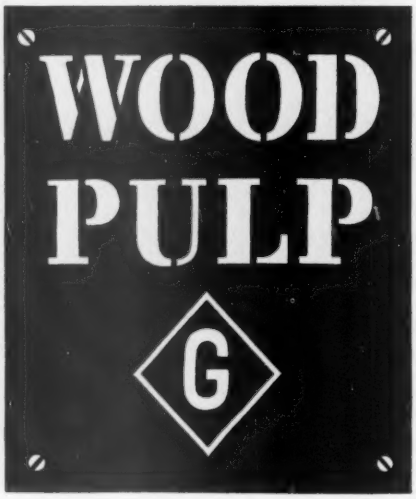

"There is America . . . which attracts the envy of the world."
EDMUND BURKE

Nearly 200 years have passed since Burke spoke these words—and America still merits the world's notice.

Free enterprise made possible this country's expansion and way of life; and free enterprise will constantly uncover new horizons for better living for all. In this progress and growth, the Pulp and Paper Industry continues a dominant factor.

★

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A Media for Company Communication

Here's a suggestion for a possibly valuable, but as yet unused media for good company and industry "communications":

Our editors have, in their travels to mills throughout Canada and the U.S., observed many thousands of vehicles of all sorts, used and owned by the pulp and paper industry.

Our thought is this—why not some slogans or illustrations that will carry a message for industry and the free enterprise system, painted or printed on the walls or sides of these many thousands of flat cars, pulpwood cars, freight cars, tankers, chemical or coal cars, trucks of all knds, barges and ships?

Many mills own railroad cars and ships of their own as well as trucks. For that matter, many allied companies or companies serving the paper industry primarily could collaborate in the scheme.

These r.r. cars, ships and trucks are seen by millions of people along railroads, highways, and rivers.

The railroads themselves know the value of advertising on their cars. Witness the many well-known slogans of railroads.

The cause of industry and the free enterprise system might be well served by carefully thought-out advertising on vehicles.

P.S.—Since this comment was written, one of our editors writes in that he observed a big semi-trailer on a western highway bearing the effective sign: *"CHIPS SAVED FROM WASTE FOR LONGVIEW FIBRE."*

It is Not Really "Rayon", it's "Rayulp"

Celanese Corp. almost singlehandedly won the fight to end the shotgun marriage of viscose and acetate under the name rayon. Hereafter only viscose is rayon; acetate is acetate.

With that example before it, maybe the dissolving woodpulp industry ought to finish the job by campaigning to have the misnomer "rayon" completely wiped out. To get away from the original misnomer "artificial silk," the name rayon was coined from "ray" for its shiny appearance and "—on" from the word cotton. In those days, cotton linters far exceeded woodpulp as the raw material.

Today "RAYULP" would be a far more accurate name. Three times more woodpulp is used than cotton linters to make rayon and acetate—for rayon, alone, the ratio is even greater in favor of woodpulp.

Why Go Socialistic?

Today's per ton tax rate on woodpulp is higher than the sales price was in 1939? Why should this country go socialistic or the government take over industries? It's doing better as it is! All government direct taxes (only) not counting payroll tax, etc., amounted to over $50 per ton of pulp for that company—federal tax alone took 65% of taxable income.

Celanese Policies Pay Off

Harold Blancke, president of Celanese Corp. of America, is one of those executives who believes that shareholders and others who help finance his company's operations are entitled to know all about the problems, plans and performance of the enterprise.

Mr. Blancke adopted this policy when his company functioned almost wholly in the U.S. Now that its subsidiary Columbia Cellulose Co. and Canadian Chemical Co. are becoming an important factor in the industrial life of Western Canada, Mr. Blancke has carried his friendly policy across the border.

Some time ago in Toronto Mr. Blancke was host at a gathering of some 200 bankers, insurance and financial leaders. In a relaxed atmosphere Mr. Blancke told them how the Prince Rupert pulp mill and the Edmonton chemical plant, now under construction, were getting along and when he was finished with his recital he invited questions which were promptly answered.

Good investor relations have paid off well for Celanese Corp. and the other day Financial Post, Toronto, commented that Mr. Blancke's program was one worthy of wider adoption.

Incidentally, when the Columbia Cellulose mill was opened early in 1951 the party who attended the ceremony was composed largely of bankers and financial men on whom modern industry depends for investment capital. Other banker groups have visited the mill at Prince Rupert since then, resulting in an intimate knowledge, widespread, concerning the company's business and service.

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PULP & PAPER circulates all over the world. *It is read in virtually every pulp and paper company office and mill throughout the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Australia and New Zealand. It is read in many other offices and mills in Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Uruguay, Venezuela, England, Ireland, Scotland, Sweden, Norway, Finland, France, Germany, Austria, Belgium, Holland, Czechoslovakia, Italy, Spain, Switzerland, Soviet Russia, Poland, Yugoslavia, India, Pakistan, Israel, South Africa, China, Japan, Formosa, both near and far around the world, where pulp and paper are made.*

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IMPORTANT NOTICE

We are now the exclusive owner of licensing rights under U. S. Patent No. 2,591,106, granted to D. Manson Sutherland on April 1, 1952.

The title of the patent is "Paper Pulps and Papers and Process of Making Same".

This patent covers High Yield Kraft Process and "Hot Stock" Refining.

Licenses have been granted and are available on reasonable terms.

Foreign applications have been filed.

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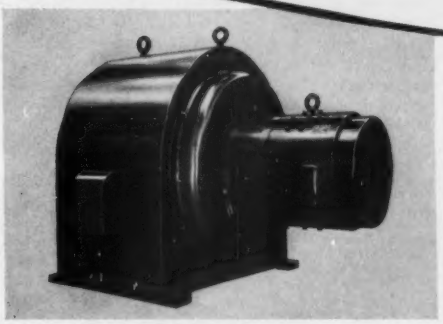

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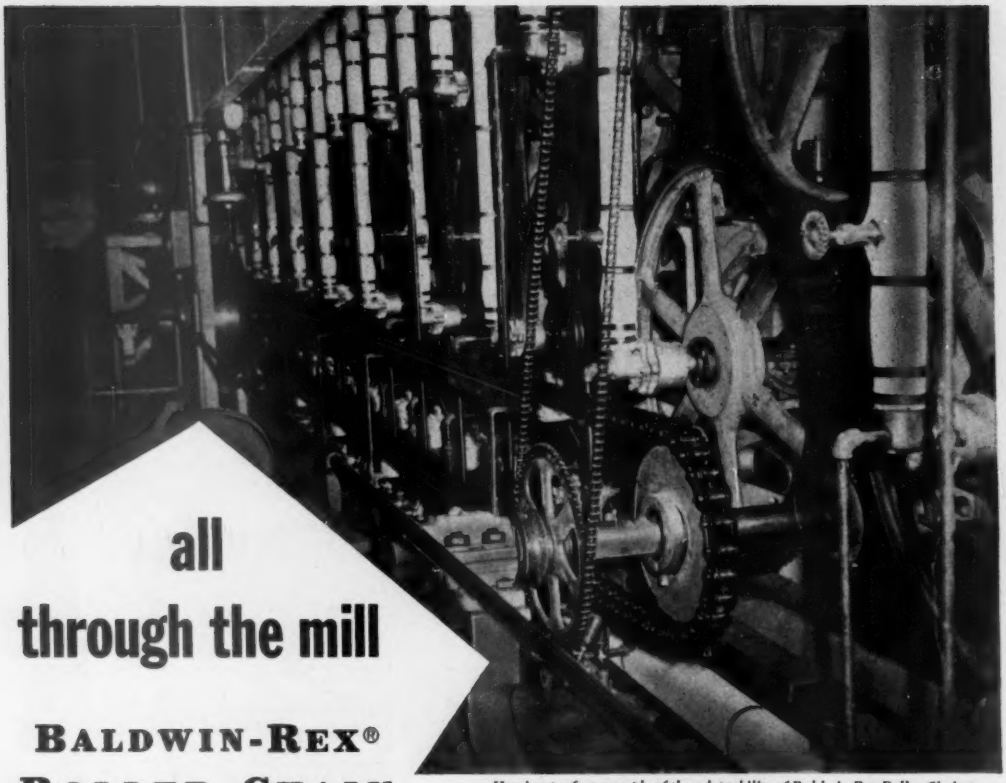

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And, don't forget, when it comes to conveyor chains for every application, the Chain Belt line is second to none. In short, you can fill all your power transmission and conveying needs with confidence from the complete Rex and Baldwin-Rex line of chains, sprockets, idlers and bucket elevators.

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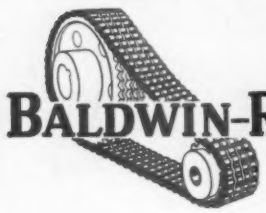
For all the facts, *call your nearest Chain Belt Field Sales Engineer or write for Bulletin 51-53 which contains complete details and specifications on all Rex and Baldwin-Rex pulp and paper mill chains and sprockets. Chain Belt Company, 4691 West Greenfield Ave., Milwaukee 1, Wis.*



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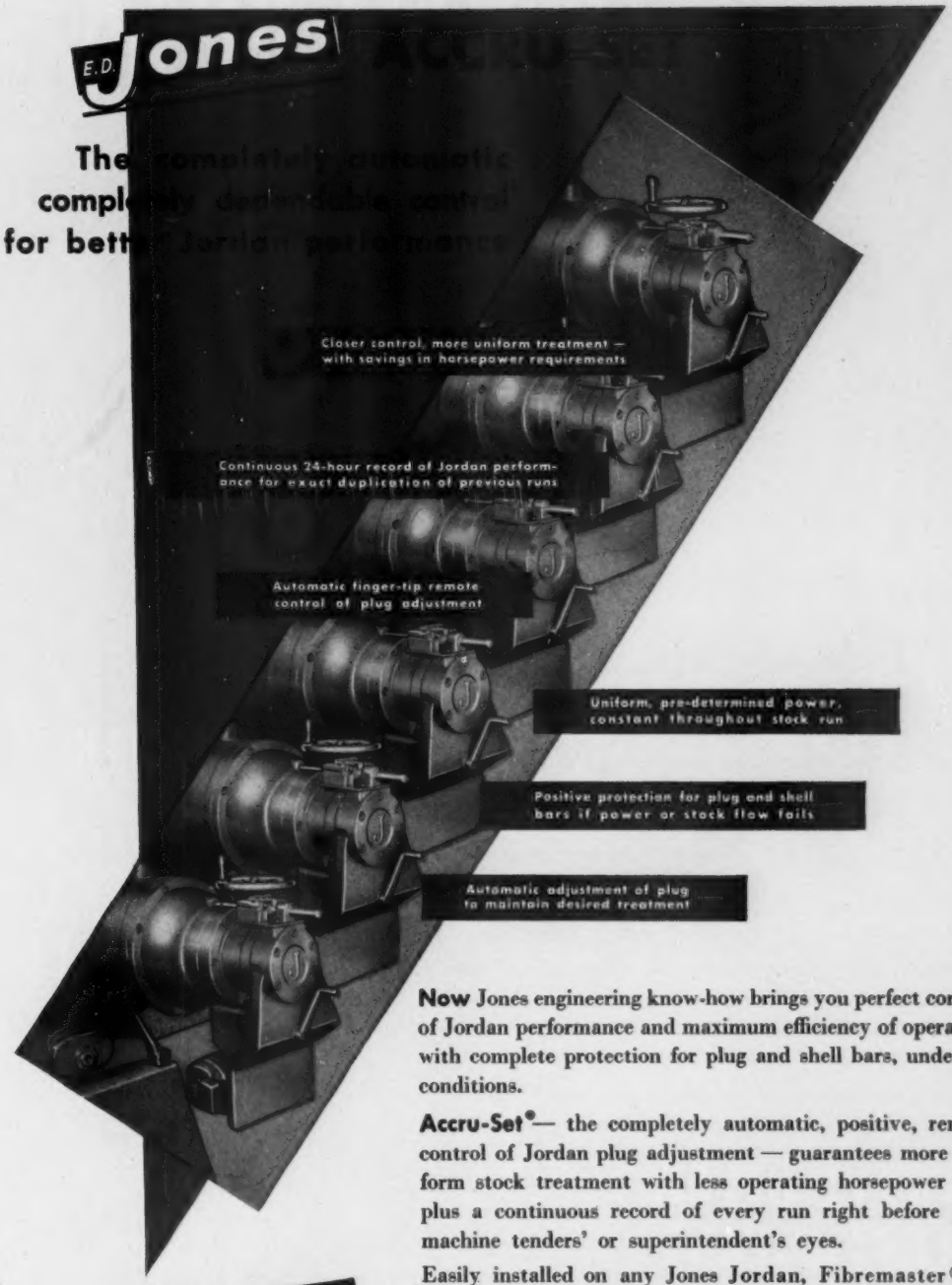
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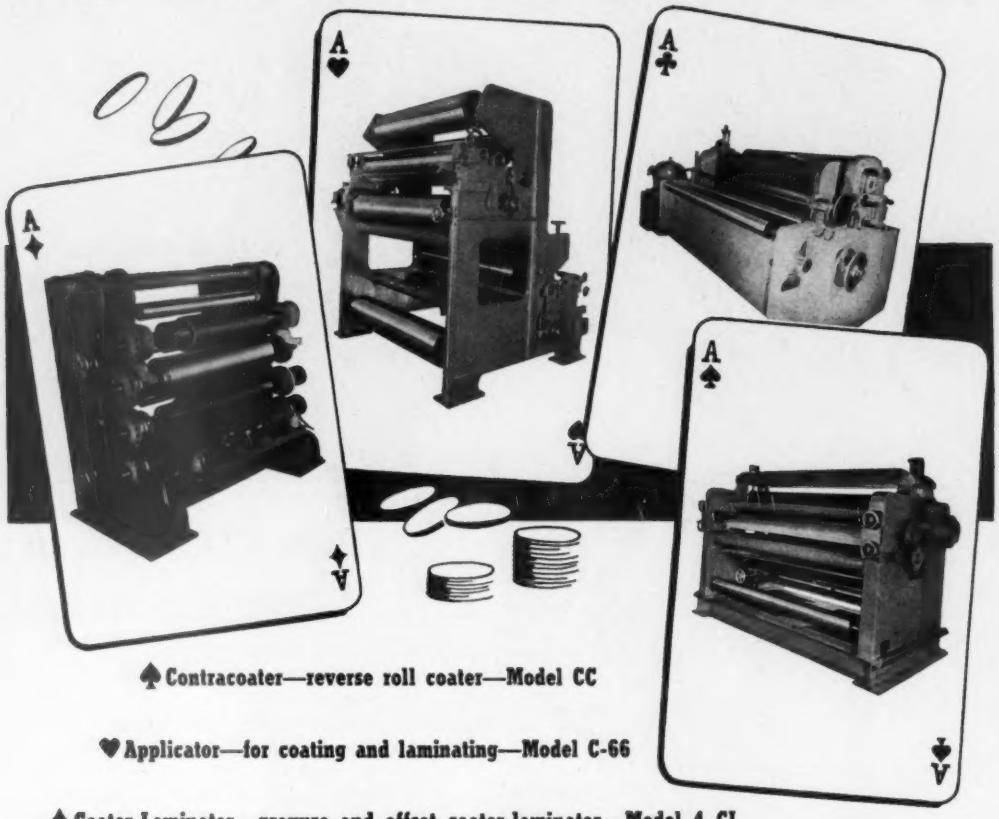

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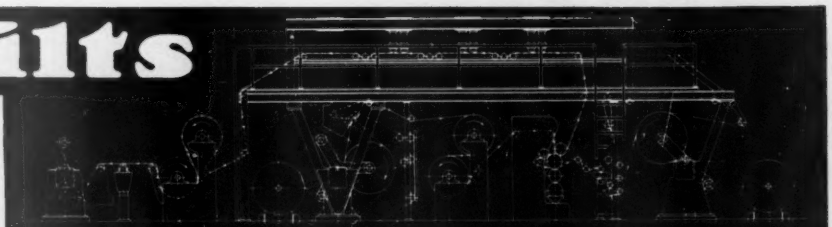

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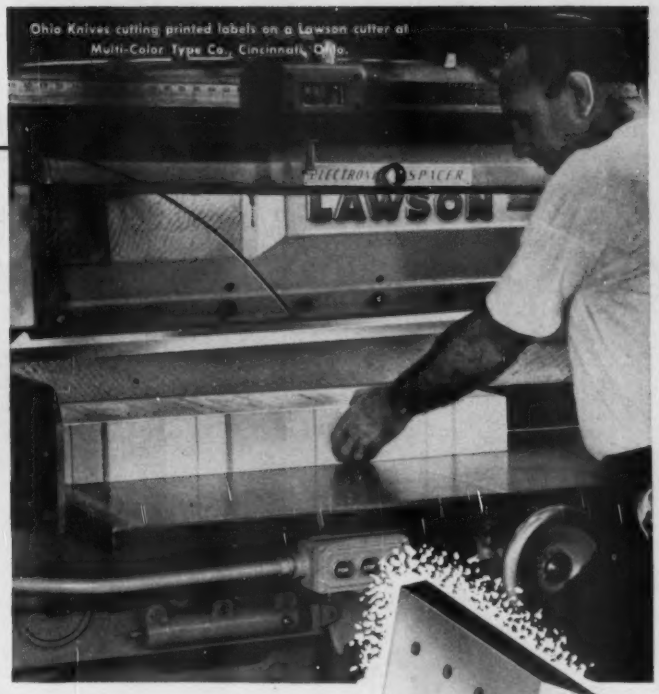

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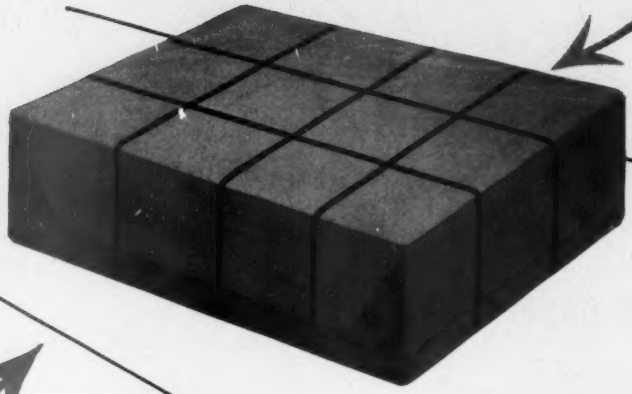

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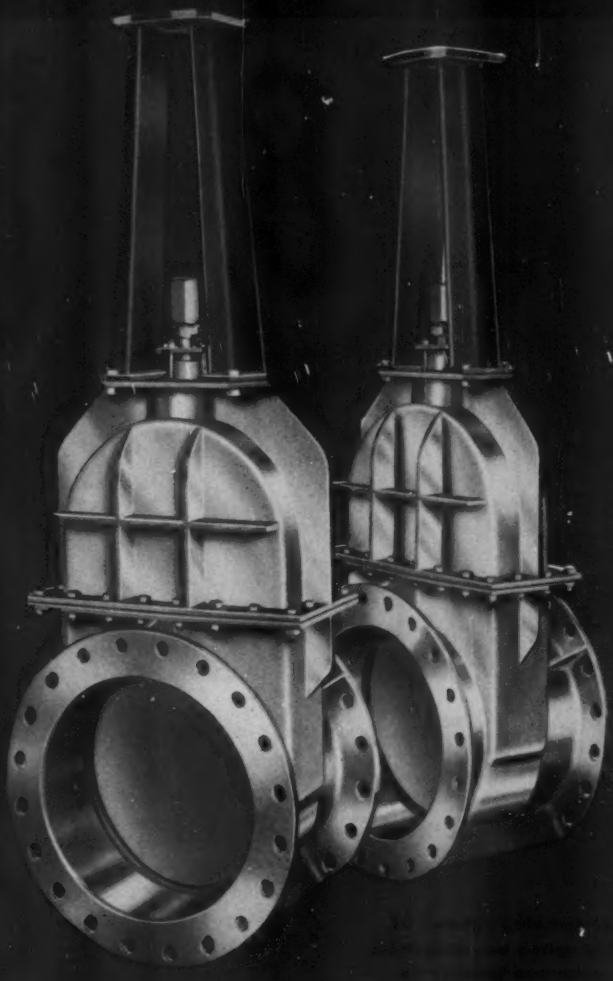

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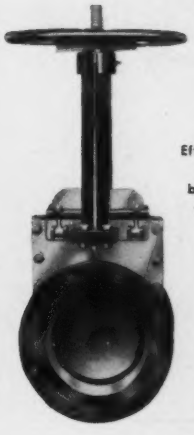

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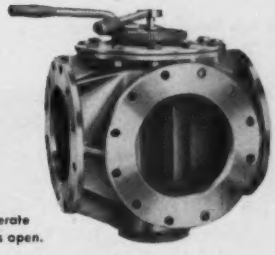

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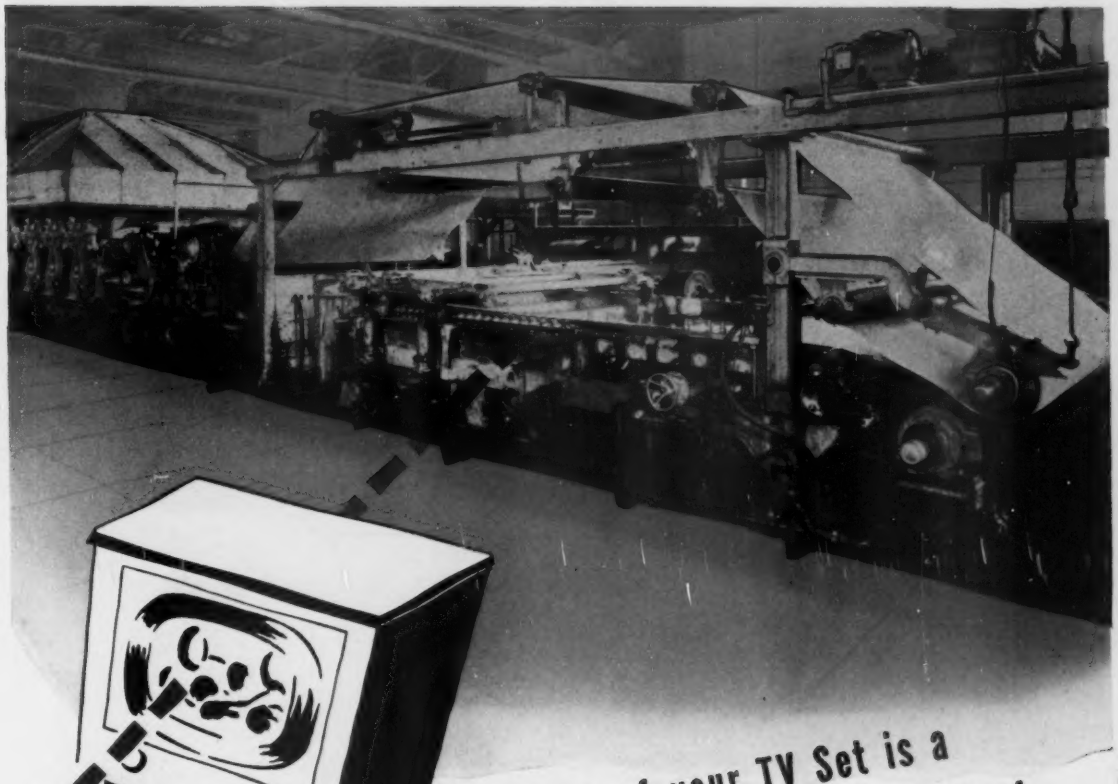

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Good reception in your television set is dependent upon a combination of the papermaker's skill and precision machinery. Rice Barton papermaking machines, in skillful hands, produce condenser tissues .0002" thick with tolerances measured in hundred thousandths.

Rice Barton machines will make paper to meet your most exacting requirements.

RB 5-52

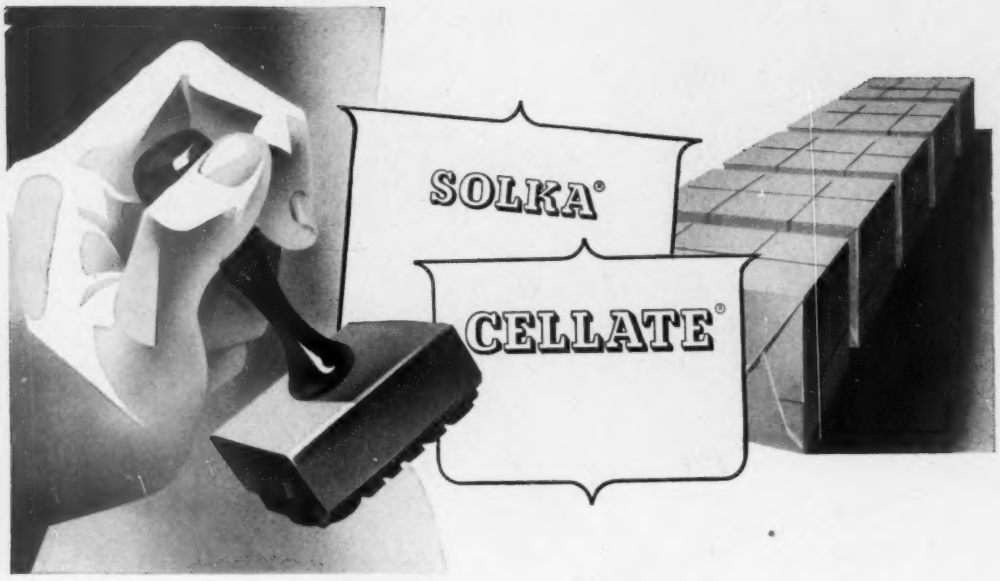
RICE BARTON CORPORATION

Worcester, Massachusetts

Paper Machine Builders Since 1837

West Coast Representative: Ray Smythe
501 Park Building
Portland, Oregon

European Representative: E. de Vries Company
480 Prinsengracht, Amsterdam
The Netherlands



They Set the Standard for Quality

These seals are stamped on all Brown Company Solka and Cellate pulps. They are your assurance of the finest quality pulps manufactured from wood cellulose—pulps that set the standard for quality in the industry. Here's why:

Brown Company pulps are made principally from its own vast timberlands of northern softwood and hardwood. This assures quality control and a dependable source of raw material.

Brown Company research laboratories are constantly producing new fibres that enable the paper industry to take advantage of the versatile characteristics of wood cellulose. They were the first to make it economical and practical to use hardwood fibres in the manufacture of many products.

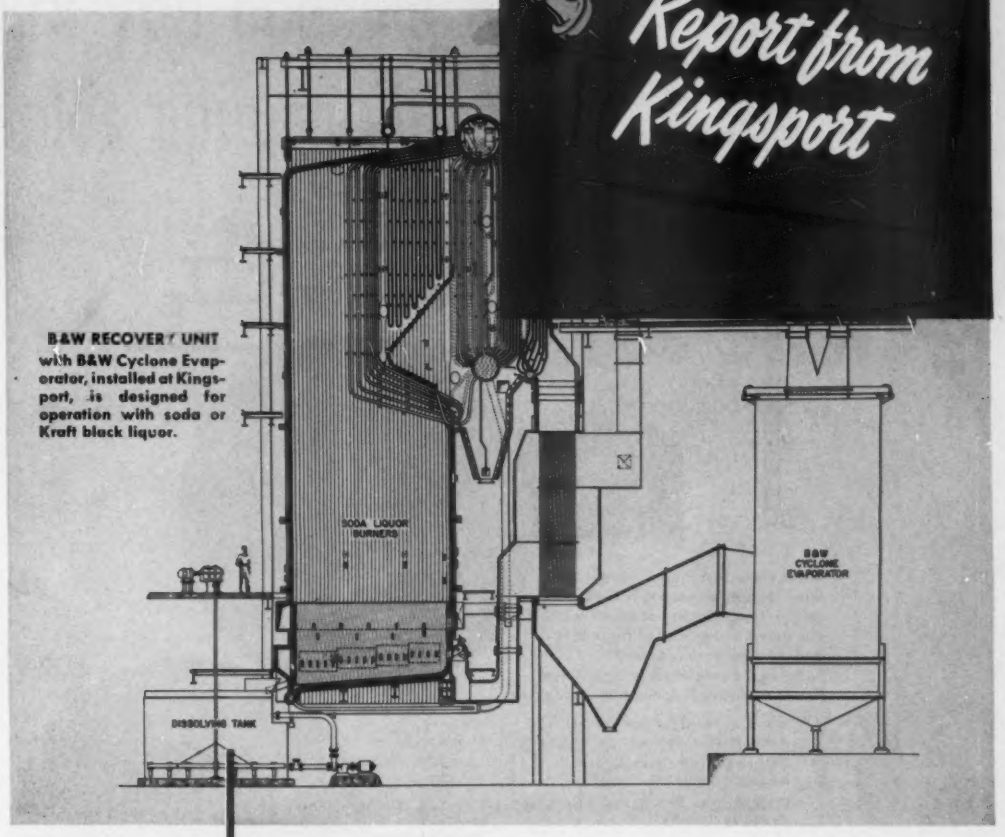
Our Technical Service Division is ready to work with you on any paper problem, however difficult it may be. Write Dept. CP-5 in our Boston office.

BROWN QUALITY COMPANY, Berlin, New Hampshire
CORPORATION, La Tuque, Quebec

General Sales Offices: 150 Causeway St., Boston 14, Mass.—Dominion Square Bldg., Montreal, Quebec

SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC KOWTOWLS
ONCO INSOLES • CHEMICALS • BERMICO SEWER PIPE, CONDUIT & CORES

Report from Kingsport



B&W RECOVERY UNIT with B&W Cyclone Evaporator, installed at Kingsport, is designed for operation with soda or Kraft black liquor.

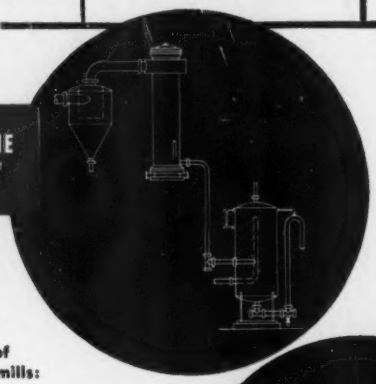
Designed to operate on a basis of 240 tons of pulp daily, and generate 107,000 lb. of steam per hr. at 900 psi and 750 F, a B&W Recovery Unit—since installation two years ago—has admirably fulfilled expectations in helping achieve better processing efficiencies and operating economies at the modernized Kingsport, Tennessee, mill of Mead Corporation. Largest recovery unit ever built for the soda pulping process, it was purchased to operate at approximately 60 per cent of its rated capacity, and under these difficult conditions has easily maintained desired heat and chemical recovery rates. The mill reports substantial savings in maintenance time and expense chargeable to recovery units. The new unit requires no hand lancing—automatic soot blowers do the job.

Performance of this unit is another indication of B&W's 75-year-old knack for meeting the specialized needs of pulp and paper mills . . . experience, facilities, and resourceful engineering that can help solve *your* recovery problems.

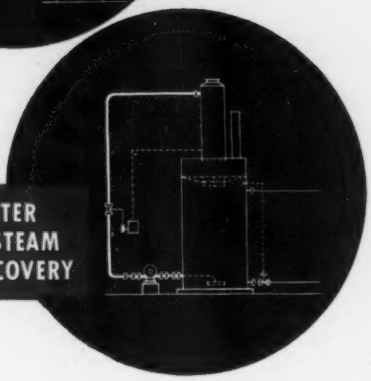
BABCOCK & WILCOX

P-761

a *plus* factor in the paper dollar



TURPENTINE RECOVERY



DIGESTER BLOW STEAM HEAT RECOVERY

Recent installations by these three leading paper manufacturers confirm once again not only the sound economics of turpentine and digester heat recovery but also the continued acceptance of Foster Wheeler equipment by pulp mills:

Riegel Paper Corporation
Acme, North Carolina

St. Regis Paper Company
Eastport, Florida

West Virginia Pulp & Paper Company
Covington, Virginia

These properly engineered systems enhance the credit side of the ledger in two ways.

First, two to four gallons of crude turpentine, a particularly valuable by-product on today's market, are recovered from every ton of pulp.

Second, valuable Btu's from digester blow steam are recovered to heat mill water for pulp washing.

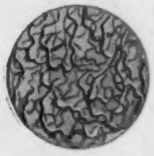
Bulletins describing these Foster Wheeler recovery systems will gladly be sent on request.

FOSTER WHEELER CORPORATION • 165 BROADWAY, NEW YORK 6, N. Y.

FOSTER WHEELER

are you opening up sales opportunities?

Let's look at **CURLATION . . .**



Notice that in paper made with Curlated pulp, the fibers are interlocked and lie in every possible direction.

Notice in paper made with uncurlated pulp, there is a directional pattern and lack of interweaving of the fibers.

You are if YOUR paper is made from Curlated pulp and has all of these plus properties . . .

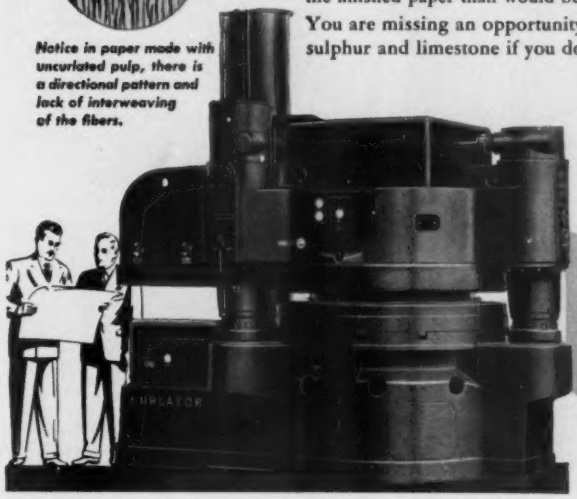
1. Maximum Tearing Strength
2. Maximum Stretch
3. Maximum Bulk
4. Maximum Bending Properties
5. Maximum Cleanliness
6. Maximum Cross Directional Strength

Only obtainable by Curlation

Yes, only Curlation can give your paper *all* these properties mechanically because Curlation not only changes the shape and diameter of fibers, but reduces fiber bundles and dirt. Curlator's patented rubbing and rolling process twists and flexes fibers under pressure . . . changes them permanently from straight to "curled." Thus more desirable properties are imparted to the finished paper than would be possible with straight (uncurlated) fibers.

You are missing an opportunity to upgrade pulp, save on wood, coal, sulphur and limestone if you don't investigate Curlators.

WRITE *today for more detailed information.*



CURLATOR†
Corporation
565 BLOSSOM ROAD · ROCHESTER 10, NEW YORK

†T. M. Reg.—Curlator Corporation, Rochester, N. Y.

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230 PARK AVENUE, NEW YORK 17, N. Y.
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MEAD
pulp

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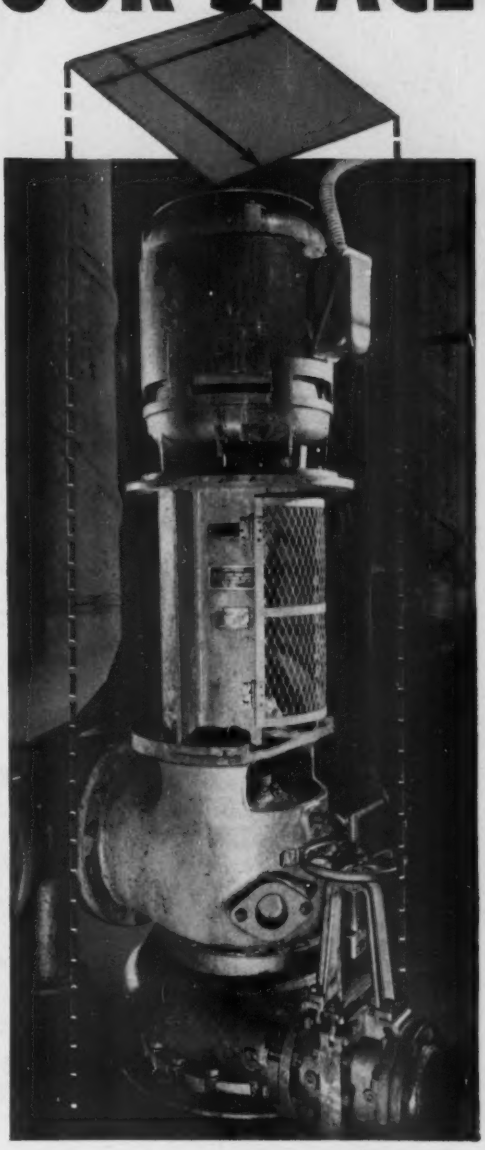
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP

Long before radio, Paul Bunyan invented a dinner horn whose sound went clear around the world until the final reverberations knocked his hat off.

A reproduction of this incident from the fabulous life of Paul Bunyan—the sixty-fourth of a series—will be sent on request. It will contain no advertising.

EASY ON FLOOR SPACE

PAPER STOCK PUMP



New VERTICAL PUMP SAVES SPACE, CUTS INSTALLATION COST

LESS THAN ONE QUARTER AS MUCH FLOOR SPACE is required for this new Allis-Chalmers Vertical Paper Stock Pump as is required for a horizontal pump of the same capacity. Installation costs are less, too, since foundations are smaller. No alignment of pump and motor shafts is required because unit is factory assembled and coupling is of short coupled, universal joint type. Accessible stuffing box makes packing easy.

The vertical design has certain other important advantages. Stock feed into the eye of the impeller is accelerated by gravity which improves suction conditions. All sizes are fitted with 16-inch suction nozzles for reduced friction and better feeding. As a result, air binding is practically eliminated and heavier stocks can be pumped without difficulty.

GET ALL THE FACTS

You can get complete information from engineers who really know their paper stock pumps by contacting your nearby Allis-Chalmers District Office or by writing Allis-Chalmers, Milwaukee 1, Wisconsin.

A-3664

ALLIS-CHALMERS

Just Like Your Fingerprints

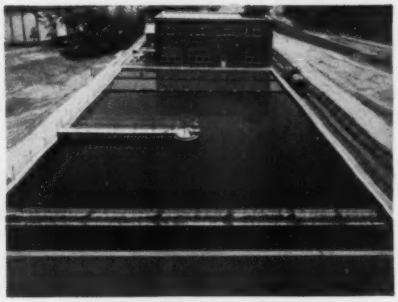
No two water treatment problems are the same

That's why it will pay you to work with DORR.

No matter what your water treatment problem, there's no magic cure-all to help you. Each problem is different because of a number of variables . . . raw water composition, rate of flow, type of treatment involved and the end result you need. The economical solution of your problem depends upon a careful evaluation of all factors and the specification of proper equipment to do the job.

That is just why the Dorr line includes every type of unit . . . for both high-rate and conventional treatment. For a more complete picture of the many types of Dorr equipment available, ask us to send you a copy of Bulletin No. 9141. You'll find it interesting. THE DORR COMPANY, STAMFORD, CONN.

Every day, nearly 8 billion gallons of water are treated by Dorr equipment.



Color removal was the problem on this job . . . solved by the installation of Dorrco Flash Mixers, Flocculators and a Dorr Squarex Clarifier.

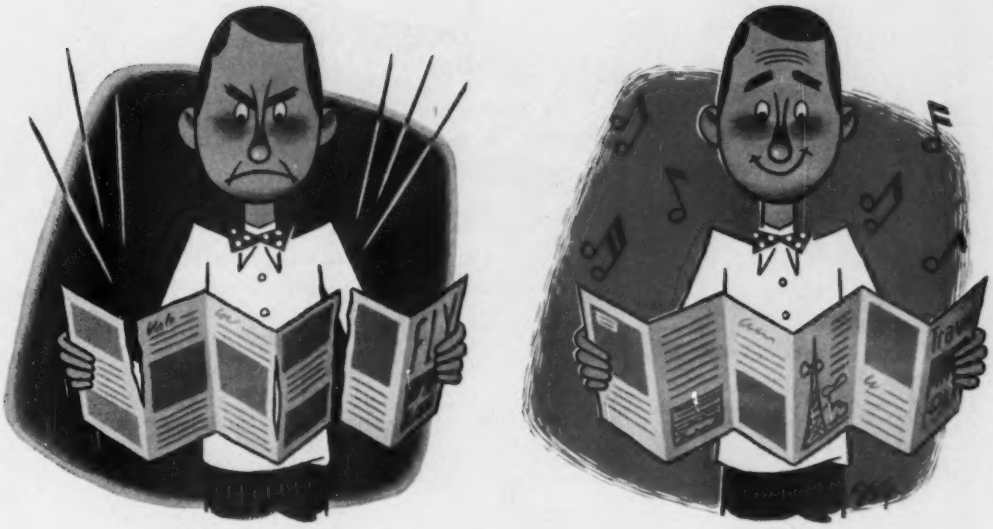
Better tools TODAY to meet tomorrow's demand

DORRCO

DORR

WORLD - WIDE RESEARCH · ENGINEERING · EQUIPMENT

THE DORR COMPANY · ENGINEERS · STAMFORD, CONN.
Offices, Associated Companies or Representatives in principal cities of the world.



the difference is a better sizing emulsion

...assured with stable, dependable ALWAX* size

For chemical and mechanical stability and good "shelf-life" or aging stability, nothing surpasses Cyanamid's ALWAX Size. Practically foolproof on the machine, ALWAX Size gives improved resistance to lactic acid, ink, water and blood serum, while imparting better folding and bending properties. In pitchy pulps, ALWAX Size is especially effective when applied in conjunction with

ACCOCEL* 741 Pitch Dispersant. The unusually high dispersing power of ACCOCEL 741 prevents the formation of pitch agglomerates which plug screens, stick paper to press rolls and driers, and make spots in the sheet.

These two Cyanamid products for better paper-making are offered to manufacturers in conjunction with

AN IMPORTANT CYANAMID "EXTRA"—

Expert Technical Service. The experience and skill of industry-trained technicians, familiar with every phase of paper-making and the problems involved in chemical applications, are at your service.

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INDUSTRIAL CHEMICALS DIVISION
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Cyanamid Paper Chemicals: ALWAX* Sizes • WAXINE® Sizes • ACCOCEL* Dispersants • ACCOBRITE® Rosin Size • PAREZ® Resins • Casein • Sulfonated Oils • Fillers • Defoamers • Soda Ash • Caustic Soda • Salt Cake • Acids Clays • AEROSOL® Wetting Agents • CALMICRO® Calcium Carbonate • AZITE® 900 Liquefier • Aluminum Sulfate • Sodium Phospho Aluminate. *Trade-mark

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Industrial Chemicals Division, Dept. 7-S
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Please send
☐ Technical Bulletin #16-B on ALWAX and WAXINE Sizes.
☐ Technical Bulletin #23-A on ACCOCEL 741 Pitch Dispersant.

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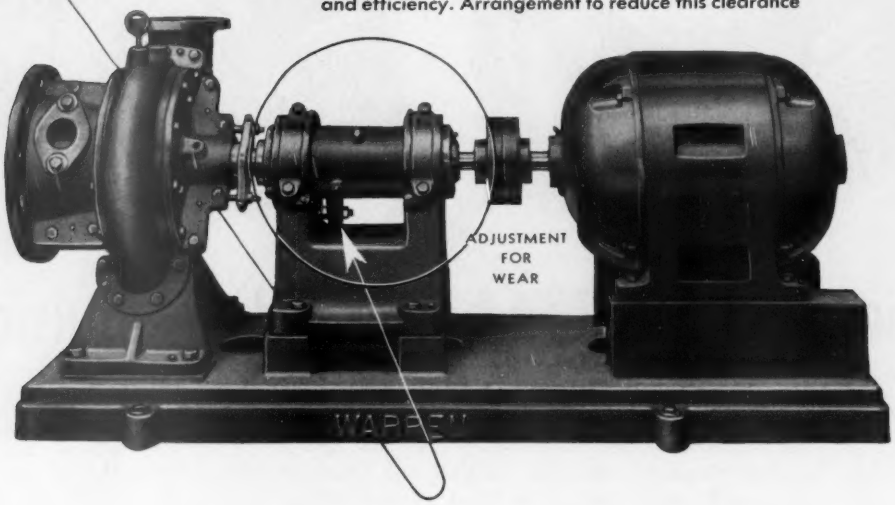
Company_____ Position_____

City_____ State_____

Extending the "Life Expectancy" of Warren Stock Pumps

Inevitable wear increases clearance between impeller and suction liner, reducing capacity, head, and efficiency. Arrangement to reduce this clearance



is provided by an adjustment screw, resulting in much less frequent replacement of liners.

This adjustment for wear is only one of the many features and refinements in Warren Stock Pumps, which all add up to *Longer Life, Greater Dependability, More Economical Operation and Lower Maintenance.*

For all Paper Mill services, including Pulp Stocks up to 7% density, Liquor Pumps in Sulphite, Soda and Kraft Mills, Water Pumps for Mill Supply, Showers, White Water, Wash-down, etc., also Boiler Feed and all other Power Plant requirements, specify:

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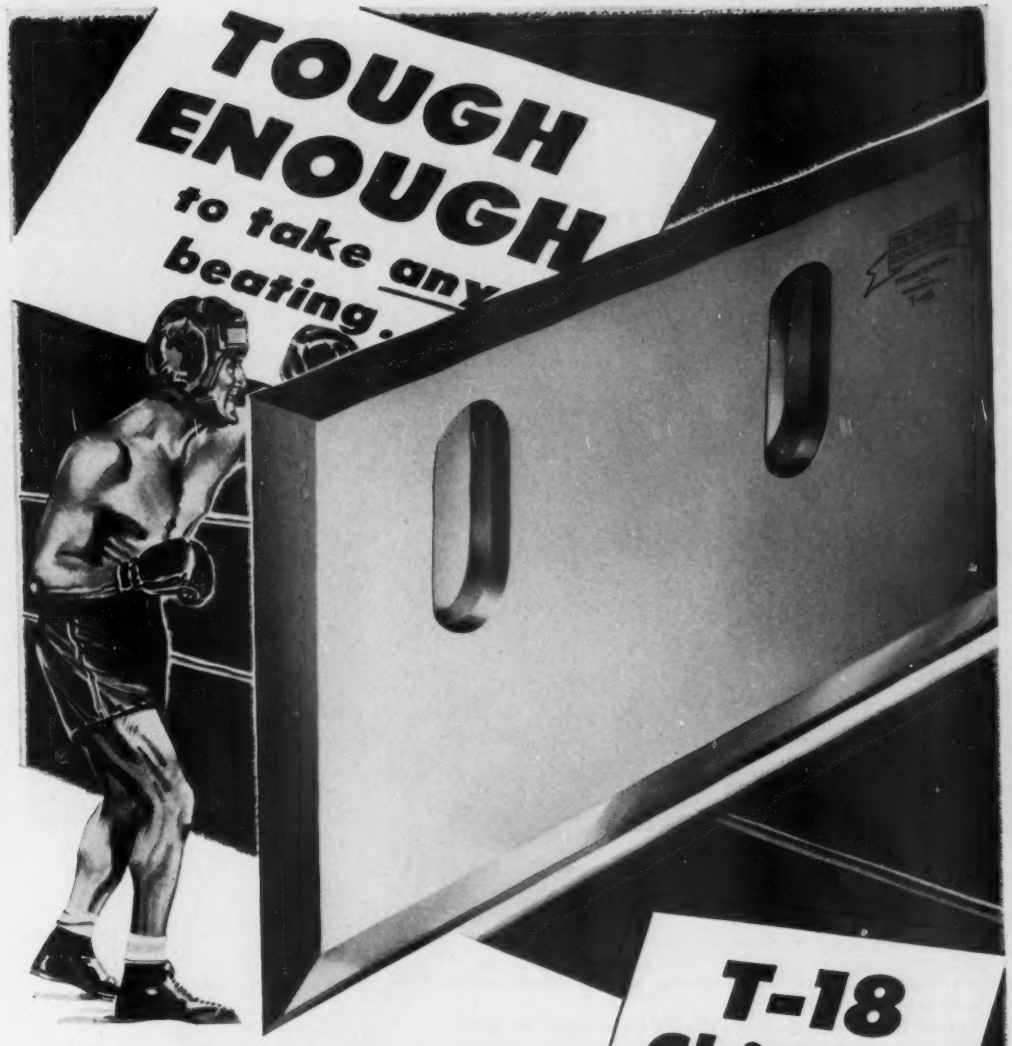
CENTRIFUGAL
RECIPROCATING

WARREN
QUIMBY PUMPS
SCREW
ROTEX

PP-21

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC., WARREN MASSACHUSETTS



SIMONDS

T-18 Chipper Knives

Chips aren't bruised and "beat-up" . . . they're not mashed and of uneven length . . . when they come out from under a Simonds T-18 Knife. But they *are* uniform in size, and that means they "cook" more quickly and evenly . . . make better-grade pulp.

Make sure you aren't losing money in your wood room. Equip all your chippers with these extra-tough knives of special Simonds T-18 Steel. They hold their cutting edge . . . hold your chip-output up and your sawdust-loss down.

Check your dealer today.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.

SPECIFY "FARREL" FOR YOUR

- Machine Calender Rolls
- Board Calender Rolls
- Super Calender Rolls
- Glassine Calender Rolls
- Friction Rolls
- Breaker Rolls
- Smoothing Rolls
- Coating Rolls
- Creping Rolls
- Plater Rolls
- Cutting Rolls
- Paraffining and Waxing Rolls
- Saturating Rolls
- Rolls for Miscellaneous Special Purposes

FB-667

During the last century, Farrel has accumulated unequalled experience and has developed the plant facilities and specialized equipment for producing rolls to meet your needs exactly.

Farrel Rolls are made in the *world's largest specialty roll shop*. Here you will find: deep pits for the vertical casting of the largest rolls used in paper mills . . . iron chills in a complete range of sizes . . . specialized pouring and handling equipment . . . provision for the most exacting metallurgical control . . . machine tools for rolls of all types and sizes . . . Farrel swing-rest grinders with the patented automatic crowning device . . . and the exclusive Farrel roll caliper — all operated by men with broad experience in every phase of roll manufacture.

For further details of the many reasons why you should *specify Farrel rolls*, send for a copy of bulletin 116. No cost or obligation.

Farrel rolls are made of chilled iron, gray iron, Meehanite metal, alloy iron, steel or chromium-plated, in sizes from 5" to 72" in diameter and up to 312" face.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONNECTICUT

Plants: Ansonia and Derby, Conn., Buffalo, N. Y. *Sales Offices:* Ansonia, Buffalo, New York, Akron, Chicago, Los Angeles, Houston

Farrel-Birmingham®

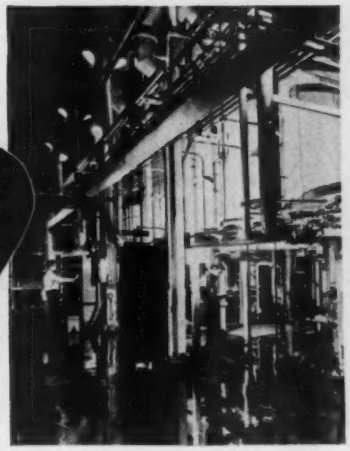
See General American for

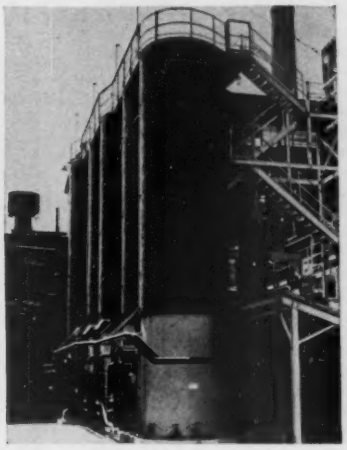
CREATIVE EVAPORATOR ENGINEERING

Indoors or outdoors —Use High Efficiency Conkey Integral* Evaporators

*Patented

Designed to do your job best!





With minor design changes the Conkey Integral Evaporator is adaptable to any plant location requirement without sacrifice of its improved design and operational features. The Conkey may be set outdoors and provided with skirts making it completely self supporting. It may also be set indoors with the skirts omitted and structural steel supports added, which are provided either by the building framing or independent columns.

These advantages are found in all Conkey Integral Evaporators regardless of final job details: (1) Easier to erect. (2) Needs less space. (3) Lower overall pressure drops. (4) Larger, more efficient entrainnent separators. (5) Fewer mechanical joints to guard against air leakage.

Because its design reduces pressure drop losses between effects, the Conkey Integral Evaporator provides an increased working temperature drop across the heating element surface. Result: a net positive gain in evaporation—extra evaporating capacity. For complete technical information, write for Evaporator Bulletin.

Other General American Equipment:
Turbo-Mixers, Filters,
Dewaterers, Dryers,
Towers, Tanks, Bins,
Pressure Vessels

OFFICES IN ALL PRINCIPAL CITIES

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Process Equipment Division
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U. OF MICHIGAN ATOMIC PROJECT

More About This Industry's Opportunity

In the March issue of PULP & PAPER, our lead editorial (page 3), suggested that if the U.S. government and Atomic Energy Commission wants the pulp and paper industry to utilize the by-products of atomic development, it should invite this industry to send some of its representatives or employes—probably young technical men—to observe and study these developments first hand.

The big units of this industry could probably well afford to assign one young man for a year of travel and study. A scientist from Hanford, Wash., Atomic Works (General Electric) told a pulp and paper industry audience the government was disappointed in the failure of mills to make more use of radioisotopes .

An AEC official at Oak Ridge, Tenn., told a visiting PULP & PAPER editor that companies could easily get clearance to send young men to Oak Ridge, Hanford, the National Laboratory in Brookhaven, Long Island, the Institutes of Metals, Chemistry, Physics and Biology at the University of Chicago and other locales where atomic work is being done.

R. M. True, General Dyestuff Corp., Portland, Ore., points out that our editorial failed to mention another institution "whose pioneer work in the atomic energy field is becoming increasingly important"—to use his words.

He referred to the Michigan Memorial Phoenix Project at the University of Michigan, which is in a major pulp and paper state and near many important mills in this industry. Mr. True is himself a 1924 graduate of the University of Michigan where he took pulp and paper courses under the late Ralph Hayward, former president of KVP. Mr. True. a native of Michigan, worked at KVP and Bryant Paper Co. before joining General Dyestuff.

Here are some comments by Mr. True:

"I understand that atomic studies do offer promising tools for research on the growth and structure of wood, cellulose, etc. The Phoenix Project, it seems to me to deserve attention of industry along with the others you mentioned. Perhaps both the pulp and paper industry and the Phoenix Project would benefit.

"Shortly after Hiroshima, the University of Michigan announced an atomic energy program designated as the Michigan Memorial Phoenix Project in memory of Michigan students killed in World War II. This project is devoted to the study of the application of atomic energy in every field of human activity except *war*. To date some $5,500,000 has been subscribed by alumni and industry for laboratories, equipment and salaries and the work is going forward. It is hoped that the Phoenix Project will serve as a clearing house through which all of the work being done by interested private institutions in this country and abroad may be coordinated.

"Of particular interest is the fact that the Phoenix Project has no connection with the AEC or any other government agency. All the funds come from individuals and private industry, none from the federal government. Consequently all knowledge resulting from the Phoenix Project studies will be freely available.

"Why the name Phoenix Project was used is interesting. It alludes to the legendary Phoenix bird which you will recall flew into the flames on the altar and was burned only to arise again from its own ashes. Our hope is that from the horror and destruction of Hiroshima and Nagasaki some good may come to mankind."

Literature sent us by Mr. True shows nuclear studies have been carried on for 25 years at Michigan, that during World War II, Michigan served as principal purchasing agent for the Atomic Bomb project; an alumnus, F. H. Spedding, organized the Ames Plutonium project; Ralph A. Sawyer, dean of the Rackham Graduate School, was technical director of the Bikini bomb tests, and George Granger Brown, chairman of the university Chemical and Metallurgical Engineering Dept., is director of the A.E.C. Division of Engineering. Alexander V. Ruthven is president of the university.

Pulp and paper companies could obtain further information by writing the University.

This is McNally's Year—Promoted by Link-Belt Company; Chicago Engineering Convention Co-chairman with Minser

This is a red letter year for W. R. McNally. He is the convention co-chairman with John A. Minser, of Crane Co., assigned to the big job of heading up the arrangements and program for this industry annual "blue ribbon" event—the Engineering Conference sponsored by TAPPI. This year's event is set for Chicago, in the Hotel Morrison, from October 13 to 16.

In addition to this honor—plus hard work—Mr. McNally just last month was promoted by the Link-Belt Co., to be its "Mr. Pulp and Paper"—succeeding H. F. R. (Bob) Weber, as its industry representative. Mr. Weber resigned and is living in Florida.

Mr. McNally's headquarters are at the Link-Belt plant, 300 West Pershing Road, Chicago. He was educated at Duquesne and Pittsburg Universities and was with Dravo Corp. before joining Link-Belt in 1945. Until recently he headed Link-Belt conveyor equipment sales to pulp and paper—now he heads all industry sales to this industry.

Mr. Minser's headquarters, of course are 836 South Michigan Av., Chicago headquarters for Crane—manufacturer of valves and fittings. He is in Alloy Sales Section.

THEY WILL CO-CHAIRMEN ENGINEERING CONFERENCE

JOHN A. MINSER (left), Alloy Sales Section, Crane Co., and W. R. McNALLY (right), recently promoted to head all pulp and paper sales for Link-Belt Co., are the Co-Chairmen of that "Blue Ribbon" event of this industry—the annual Engineering Conference sponsored by TAPPI. Both gentlemen have their offices in Chicago and this year's Conference will be held in Chicago's Hotel Morrison, October 13 to 16.

Minser With Crane Co.

J. A. Minser of Crane Company, who is co-chairman of the Engineering Conference of TAPPI in Chicago in October, joined Crane in the St. Paul, Minn., branch in 1919, where he worked until leaving to serve as an officer in the field artillery in the Second World War from 1940 until 1946. On his return, he was called to the home office and has been in the Alloy Sales Section of Valves and Fittings Section and works directly with the pulp and paper industry. Mr. Minser has attended several Engineering Conferences and, last year, went to Portland, Ore., for the national meeting of the Mill Superintendents.

LATE BULLETIN— NEW BELOIT PRESIDENT

HARRY C. MOORE, whose election as new President of Beloit Iron Works was announced just as this issue went to press. E. H. NEESE became Chairman.

Union Bag Buys Land

Purchase by Union Bag & Paper Corp. of 26,000 acres of forest land from Brunswick-Peninsular Corp. last year for $2,000,000 provides a ready illustration of the investment values in southern pine lands. Lands of this type were acquired in 1920 for as low as $15 per acre; now command $100 per acre.

More Newsprint

A DPA certificate of necessity for $122,-200 has been granted Publishers Paper Co., Oregon City, Ore., owned by a group of western papers, to increase capacity of its No. 1 machine by 5500 tons a year.

SEE PAGE 3 FOR INDEX To Articles in This Issue

McDERMOTT TO START FLORIDA MACHINE
Victor Succeeds Him In Tacoma Mill

NEW KEY POSTS IN SOUTH

U. J. WESTBROOK (left), who has been promoted to supervise both of the big St. Regis operations in Florida, the expanded mills at Pensacola, Fla., and the new mill being completed late this year at Jacksonville, Fla. Mr. Westbrook has been Gen. Supt. at Pensacola, which started up new Bagley & Sewall machine last month.
JOHN McDERMOTT (right), promoted to Gen. Supt. of the new Jacksonville Paper Mill, which he will supervise in starting up, as he did at St. Regis new Tacoma mill where he went in 1947. Before that he had been Supt. for St. Regis at Oswego, N.Y. Son of a papermaker, he was born in Kingston, Ont.

John C. McDermott, ace kraft operator for St. Regis Paper Co. for many years, has moved on to another new St. Regis mill, to oversee start-up and to direct operation of a new high speed machine. And again, it has meant a cross-country trek for him.

As new general superintendent of the modern new kraft mill under construction at Jacksonville, Fla., he has arrived on the scene of his new duties with his family after driving across country from Tacoma, Wash., where he was paper mill superintendent since 1947 and started up the new machine there in Jan. 1949. Tacoma reputedly has the fastest straight Fourdrinier on kraft—hitting 1600 f.p.m. (a 180 in. machine), but at Jacksonville, Mr. McDermott will have charge of a 230 in. new Beloit which will have the new much-discussed suction pick-up (see exclusive picture and description, page 59, April 1952 issue of PULP & PAPER).

It is expected this machine will reach speeds close to the almost-Utopian 2,000 f.p.m. on lightweight kraft. It will be equipped to make any kraft grades from 20 lb. to 25 pt. board. It will have the Beloit air-cushioned inlet and ahead of this will be two Noble & Wood Victory type beaters and Emerson jordans. Backing this production up will be a 350-ton pulp mill with hi-density storage. The Beloit machine output may range from 240 tons a day on lightweights to a potential of 400 or more of heavy board.

Born in Kingston, Ont., Mr. McDermott started in the Harmon Paper Co. of Brownville, N.J., as he says "sweeping the floor"—he was 17. He was with Frontenac Paper at Dexter, N.Y., and then began his long career with St. Regis at Herrings, N.Y., in 1928, where one machine made kraft specialties. Here he worked up from backtending to night superintendent. Then at Oswego, N.Y., where there was one kraft machine, he was night boss, 1936-9, and then mill superintendent, 1939 to 1947.

In Florida, he again joins Justin McCarthy veteran mill engineer and builder, chief engineer of the construction. They had teamed up at Tacoma. Mr. McCarthy has been in Florida about a year, and expects to see completion of the mill late this year.

Mr. McDermott married the former Isabel J. Carroll of Watertown, N.Y., and they have four children. Two boys, 11, and 4, moved in with them in their new home at Glynlea Park, Jacksonville. A son, John C. Jr., 21, is with the Coast Guard in Boston, and a daughter, 17 is in Rochester University.

Over 75 employes turned out for mill staff-inspired farewell party for Mr. McDermott before they left Tacoma, with Ray Brugeon, West Coast traffic manager for St. Regis, as toastmaster. Two traveling bags were given Mr. McDermott as farewell presents.

PROMOTIONS IN WEST

JOHN M. VICTOR (left), is new Paper Mill Supt. of St. Regis Paper Co., Tacoma, Wash., succeeding John McDermott, who has arrived in Jacksonville to be Gen. Supt. of new St. Regis mill there. Mr. Victor went west from Deferiet, N.Y., where he was Night Supt., in 1947, when new Tacoma mill was built. Indiana-born, he was formerly at Oakmont, Pa., and Cornwall, Ont. SID DOLAN (left), Assistant Superintendent, who becomes a principal aid to Mr. Victor. Born in Victoria, B.C., he was with Pacific Mills, St. Lawrence, Abitibi, C.Z. at Camas, Potlatch and Columbia River before joining the Tacoma staff last August.

John Victor Now Supt.

One of those who arranged the farewell in Tacoma was his successor, John M. Victor, now Tacoma paper mill superintendent, who went west with him back in 1947, from St. Regis's Deferiet, N.Y., mill where Mr. Victor was night superintendent for 1½ years. He was assistant superintendent at Tacoma.

Before Deferiet, Mr. Victor was 3½ years with U. S. Gypsum at Oakmont, Pa., as superintendent of kraft specialties. Prior to that, he was assistant superintendent at Howard Smith Mills in Cornwall, Ont., for a year, and this followed nine years at Nashua River Mills, East Pepperell, Mass., where he was boss machinetender. He was born in Clinton, Ind., and started out in the Terre Haute, Ind., board mill "hustling broke and bales of straw."

"Gob" DesMarais Joins Penn Salt

H. A. "GOB" DesMARAIS, new General Sales Mgr., Penn Salt Mfg. Co. of Washington.

H. A. "Gob" DesMarais has joined the Pennsylvania Salt Manufacturing Co. of Washington, with plants in Tacoma, Wash., and Portland, Ore., as its general sales manager. He will make his home in Tacoma, where Fred C. Shanaman, president of the company, made the announcement.

General Dyestuff Corp. announced that Robert M. True, of Portland, Ore., would be promoted to Pacific Coast manager for that company, taking over the position which Mr. DesMarais had held since 1937.

Hubert A. DesMarais, who went to the coast in 1932 and has been an outstanding figure in industry affairs and association activities, was born in New Bedford, Mass. Particularly since his navy service in World War I, his given name is hardly known at all by his many associates and friends, who all know him as "Gob."

The new Penn Salt executive, his wife, the former Marion Parker, and three children have lived many years in Palo Alto, Calif. The daughters are in Scripps College and U. of Arizona; the son. Hubert III, is a freshman in Bellarmine College Prep, San Jose, Calif.

Mr. DesMarais was first secretary-treasurer of the new Pacific Coast Superintendents Division when formed in 1933 and held the office till 1937. He was reception committee chairman for two National TAPPI and one National Supts. convention on the Pacific Coast.

He graduated from Cushing Academy in 1922, Dartmouth in 1926. He has been president of Cushing alumni.

He started his career in paper and textile mills in New England, and worked up to superintendent of Chemical Paper Mfg. Co., Holyoke, Mass. He joined General Dye in 1928 in New England, and opened their Portland, Ore., office in 1932, moving to California in 1937.

New Kind of Safety Contest

Neenah, Wis., mill of Kimberly-Clark Corp., has challenged the Kimberly, Wis., mill of the same company to a new kind of safety contest: Matching their records for both off-duty and on-duty lost time accidents. Kimberly recently set a national record for class A pulp and paper mills in safety.

BOWATER DISCUSSES PLANS

INTERVIEW ON EAST TENNESSEE PROJECT

In an exclusive interview with PULP & PAPER in New York last month, Sir Eric Bowater, head of the Bowater enterprises and mills in Britain, Newfoundland, Norway and Sweden, declared that the new Bowater Southern Corp. of Tennessee has well over 200,000 acres of forest lands to back up the project and yield major wood requirements "in perpetuity."

Total capital needed for the project already has been subscribed by local bankers and insurance companies, said Sir Eric. He added that about 100 Southern newspaper publishers have already contracted for a long term advance purchase of the newsprint to be made from Southern woods. He said the 2-machine mill, 300,000 tons a year capacity, will be in operation by March 31, 1954, possibly earlier.

K. O. Elderkin was relieved of his duties as manager of Crossett Paper Mills in order that he could accept appointment as new general manager of the Charleston, Tenn., mill, and it is probable other leading Canadian-trained high speed newsprint men will form part of the key staff. Mr. Elderkin himself was from Canada when he went to Crossett, Ark., in 1939 to set new industry records for high speed lightweight kraft production.

Sir Eric told PULP & PAPER that the Southern consulting and engineering firm, Sirrine & Co., of Greenville, S. C., has been engaged for the project.

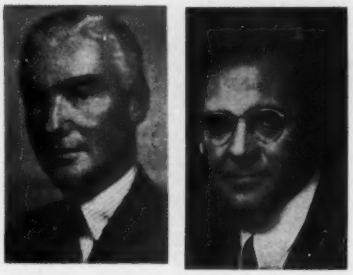
Equipment Selected

There will be two newsprint machines and one pulp drying machine. Beloit Iron Works will build the two high speed paper machines, each trimming 227 in. and equipped with suction pick-up and designed for upwards of 2,000 f.p.m. Drive will be by General Electric Co., grinders by Montague Machine Co. and steam and bark boilers by Combustion Engineering.

Sir Eric confirmed that a Bowater group has been conferring in New Zealand regarding possible acquisition of a project already under way there for a new mill in which the New Zealand government was interested. Fast growing pine has become a major world pulp potential in New Zealand.

Sir Eric said his enterprises expect to increase the sales of their Corner Brook, Newfoundland, mill in the United States, even after the Southern mill comes in.

The Southern company is expected to sell all its newsprint south of the Mason-Dixon line. Meanwhile, practically all of the Newfoundland newsprint has been selling in the U. S., and Sir Eric said they expect to sell 300,000 to 340,000 tons annually in this country from there, all of this to papers north of the Mason-Dixon line. The new high speed Dominion Engineering No. 7 machine at Corner Brook, described and illustrated in PULP & PAPER a few years ago, is now running at 1,600 f.p.m. and will be speeded up more, he said, as well as the other machines there. About $7,000,000 is being spent at Corner Brook.



SIR ERIC BOWATER (left), head of the far-flung Bowater's organization, told PULP & PAPER in an exclusive interview that 100 Southern publishers will buy newsprint from the new Bowater mill in Tennessee.

K. O. ELDERKIN (right), who ends 14 years of achievement in high-speed papermaking in the state of Arkansas to move to Tennessee as General Manager of the new enterprise.

By Mar. 31, 1954, he said, when the Southern mill has started up, the whole Bowater organization will be making annually: 800,000 tons of newsprint; 100,000 tons of other papers; 100,000 tons of market chemical pulp, and 125,000 tons of market groundwood pulp. Bowater British mills are running full. At Kensley Britain has the largest newsprint mill in the world and the only groundwood mill in Britain.

Sir Eric declared that the Southern mill property consists of a 1,500 acre site on the Hiwassee River. That $55,000,000 would be invested in plant and equipment. That the mill will have ready access to the Southern Railway and Route 11, nearby.

Cheaper Newsprint in South

He declared further that Bowater studies indicate they can make newsprint cheaper in the South than in Canada, primarily because wood is cheaper and it can be logged the year around.

Sir Eric became head of Bowater when his father died in 1924. In 1925 he built the first newsprint mill in England at Gravesend, doubled its capacity in 1929, built a second mill in 1930, doubled its capacity in 1932. In 1936, Bowater bought the Edward Lloyd mills in England and in 1938 moved in to Newfoundland. In 1937, Bowater bought three groundwood mills in Sweden and Norway and these have been expanded.

A. C. Gilbert Dies

Albert C. Gilbert, chairman of Gilbert Paper Co., Menasha, Wis., and president 1926-1951, died at his Neenah home Mar. 14 after a year's illness. He was 64. His grandfather founded the company, which also was headed by his father. His widow, a son, N. T., four daughters and 15 grandchildren survive.

Joe Scheuermann Dies At New York Home

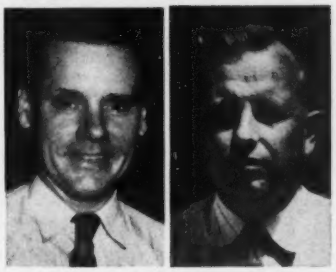
Joseph S. Scheuermann, 56, for the last two years vice president in charge of converting machinery division of Bagley & Sewall and widely known industry salesman, died suddenly April 3, at his home in Manhasset, Long Island.

Mr. Scheuermann was born and schooled in Scranton, Pa. He was a popular figure in the machinery field and was 25 years with Cameron Machine Co. of Brooklyn, where he was vice president in charge of sales. Surviving are his widow; two sons, Robert and Richard; and two daughters, Lois and Mrs. Yvonne Vanderberg, Kalamazo, Mich.

Harry Specht Retires

Calvin H. Nealley, president of the Eastwood-Nealley Corp., manufacturers of Fourdrinier wires, wire cloth and suction box conditioners, announces retirement of Harry G. Specht as vice president and director.

TOP MEN AT CROSSETT



J. C. HAIR (left) who had been serving Crossett Paper Mills, Crossett, Ark., as Production Manager, has become Manager of the Paper Mill Division of the Crossett Companies, Crossett, Ark., according to Peter F. Watzek, President. C. WAYNE SMITH, (right) Plant Engineer, was promoted to Production Manager, and his place was filled by R. Q. Conner. Mr. Hair succeeds K. O. Elderkin who left to become manager of Bowater Southern Paper Co.'s new newsprint mill project at Charleston, Tenn.

Pulp Mill Execs Meet C. C. Moore President

Harry H. Smith, of San Francisco, president of C. C. Moore & Co., Engineers, made a trip to the Pacific Northwest recently and at a Seattle dinner party met and renewed friendships with a number of pulp and paper mill executives and other guests.

David W. Harris, Seattle manager for C. C. Moore, and engineers of the Seattle office, B. N. Thorson, G. E. Thornton, Jr., and L. L. Jirucha, were hosts. C. C. Moore managers, R. L. Andreson of Phoenix, Ariz., and J. F. Grieve, of Portland, Ore., and C. W. Quentel, sales engineer from Portland, also were guests. C. C. Moore & Co. represents Babcock & Wilcox, Cochrane Corp., Detroit Stoker and other companies on the Pacific Coast.

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The increased volume of stock handled by hard working, fast running paper machines means increased volume of white water.

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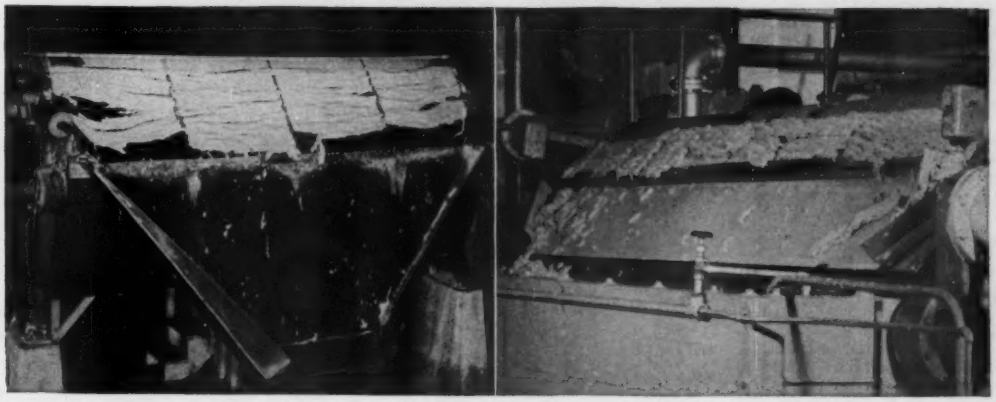
THE BIRD SAVE-ALL



TENNESSEE TO GET ANOTHER MILL

With NPA approval of a $20,000,000 application for a paper mill at Elizabethton, Tenn., on the Watauga River, that community takes a step forward in its calculated move to solve the problem presented by 1500 persons without regular employment in Carter county. The plan is utilization of bonds authorized by local vote in 1951 for a paper mill to be leased to the Monadnock Paper Mills, Inc., (Watauga Division), Bennington, New Hampshire.

This is the first community in Tennessee to take advantage of a stale industrial revenue bond law.

H. K. Ferguson Co., 19 Rector St., New York City, is engineering the project.

Local authorities and the Monadnock Paper Mills, Inc., agreed total cost of acquiring land and erecting the mill will be amortized over a period not to exceed 22 years.

The company will pay on a rental basis of $1,400,000 annually with the first payment due at the end of the year and thereafter in quarterly installments. The company will pay insurance, maintenance and repair. At end of the 22-year period, the company will have 15 options of five years each at rental of $60,000 per annum. Bowater's planned newsprint mill at Charleston, and the Elizabethton mill would be the 12th and 13th mills for the state of Tennessee.

The Elizabethton site will include 75 acres, and the structure will include 200,000 sq. ft. of floor space. It is expected to produce 200 tons daily of bond and printing papers consuming approximately 400 cords of wood daily of which 60% will be pine and the balance, hardwood. Employment for 500 in addition to those employed in providing pulpwood, is expected.

Elizabethton is in eastern Tennessee, about 30 miles south and east from Kingsport (where The Mead Corp. operates a mill) and about 100 miles north of the Champion Paper & Fibre Co.'s mill at Canton, N. C.

The Monadnock Paper Mills, Inc., was established in 1835 and has an excellent credit rating. Gilbert Verney is president and Henry Beckingham, vice president. Allied enterprises are conducted under the name of the Verney Co. The mill is expected to go into production one year from conclusion of all preliminary activities preceding construction work.

ELIZABETHTON is site for proposed Monadnock 200-ton bond and printing papers mill using Southern pine and hardwoods in East Tennessee. Just 30 miles away in Kingsport, is Mead's 225-ton book and coating mill with 140 ton soda pulp mill. At Bristol, Va., Mead has an 85-ton soda pulp mill, and Schieren Co. an 8-ton semi-chemical mill. At Canton, N. C., Champion has its 330-ton paper and board mill with soda and kraft pulp mills. Mead's mills at Sylva, N. C., Knoxville and Harriman, Tenn., making semi-chemical chestnut .009, are just off the map westward from Canton a short distance, and also Olin's Pisgah Forest, N. C., flax paper and cellophane plants.

Oil At Pensacola

Because of the oil well brought in by Humble Oil and Refining Co., in late January at Pollard, Ala., which is near the 300,000 acres held by St. Regis Paper Co. north of Pensacola, Fla., St. Regis has retained consulting geologist services. The company holds undivided one-half interest in mineral rights on 250,000 of the acres.

Over a half-ton of nails, wire and other metal items have been picked up by road magnet on a truck operated over gravelled highways and other roads at 5 m.p.h. by Crossett Industries, Crossett, Ark.

Swenson Evaporator Addition at Covington

West Virginia Pulp and Paper Co.'s Covington, W.Va. plant, according to The Rust Engineering Co. Building constructor, is installing a new Swenson sextuple effect black liquor evaporator in an addition to existing evaporator, and two new fire tube boilers.

Henderson Firm Moves To New Pensacola Home

After seven years engineering sales work among Southern mills, W. W. Henderson & Sons, Pensacola, Fla., celebrated by removing to more spacious quarters at 3627 Navy Boulevard from North Spring St. The new location is on Florida Route #295, between Pensacola and the Navy Base. Mail address: P. O. Box 1085, Pensacola.

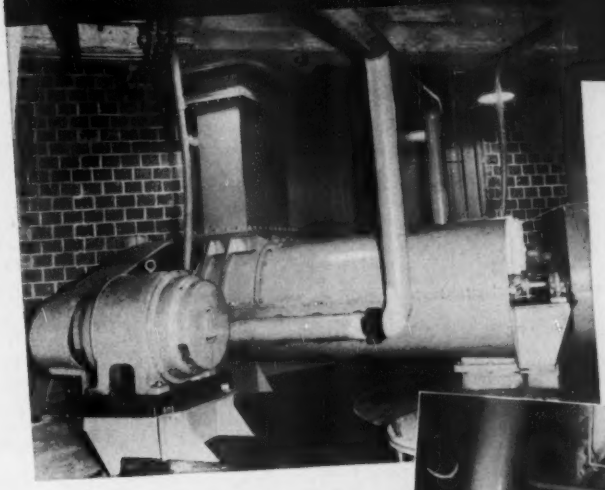
It was in Lufkin, Tex., in 1945, that Bill Henderson launched his engineering-sales business after three decades in the Southern producing field. The Southern industry dates from mills at Orange, Tex.; Roanoke, Va., and Moss Point, Miss. The fourth mill was the Bogalusa Paper Co., at Bogalusa, La. (now Gaylord Container) where "Bill" came into the picture as assistant to Col. W. H. Sullivan, of Great Southern Lumber Co., being active in erection of the mill in 1916-17.

In 1920 he became associated with the late R. J. Cullen and Lawrence H. Fox, organizers of Bastrop (La.) Pulp & Paper Co., serving as its manager (1921-26). After acquisition by International Paper, Mr. Henderson was sent to Camden, Ark., Mobile, Ala., and Panama City, Fla. to help build mills there (1927-29). In 1935, Mr. Henderson joined the late James H. Allen in building the Union Bag & Paper Co., Savannah, Ga., and from 1939-1945, helped build and remained with Southland Paper Mills, Lufkin and then started his own business.

Today, the Henderson lines in the South include DeZurik Shower Co., Earl Paint Corp., Horton Mfg. Co., E. C. Wolferz Alloy Equipment Co. and several others. His sons, J. A. "Chic" Henderson and Richard Henderson, who is at Earl Paint Co. mastering intricacies of mastic corrosion control applications, are associated with Mr. Henderson. C. M. ("Cleve") Fair is also with the firm at Pensacola. A value this firm offers is ability to engineer a job before it is sent to a factory for production.

HERE ARE NEW OFFICERS of W. W. Henderson & Sons in Pensacola, Fla., and—in effect—looking at you out of their big plate windows are (left to right): W. W. HENDERSON, head of the firm; sons, CHIC and DICK (latter now on leave at Earl Paint Co., one of Henderson lines, learning their techniques); MRS. W. W. HENDERSON, wife and mother; CLEVE M. FAIR, an official of the firm.

Another *Sandy Hill*-KAMYR Bleach Installation



at the ultra-modern Bleach Plant of the

Puget Sound Pulp & Timber Co., Bellingham, Wash.

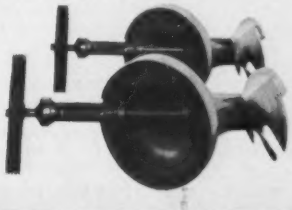
Above: Installation photograph of Sandy Hill-KAMYR 450-ton double shaft, stainless steel steam mixer. The enlarged Puget Sound plant now has facilities for producing 400 tons per day of high grade paper and chemical pulps. The bleach plant is fully automatic in operation and requires one man per shift in attendance.

Above: Sandy Hill-KAMYR Dilution Nozzles. Six of this type are used at the bottom of the caustic reaction tower at the Bellingham installation.

Above: Single shaft Sandy Hill-KAMYR mixer and top of hypo reactor tower at bleach plant of Puget Sound Pulp & Timber Co.

At right: Two Sandy Hill-KAMYR Feed Pumps that handle the flow of stock from the first stage hypo washer at Puget Sound.

At right: Two Sandy Hill-KAMYR Tangential Pumps of the type used in dilution and agitation processes at the new installation.



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Kamyr Pulp Bleaching Equipment
Scofield Felt Conditioners
Yankee Fourdrinier Machines
Yankee Cylinder Machines

MODEL BLEACH PLANT

PUGET PULP UPGRADES PRODUCT

(See Cover Picture)

Recent completion of two additional stages to an original two-stage bleach plant gives Puget Sound Pulp & Timber Co. of Bellingham, Wash., the plant facilities for producing 400 tons per day of high grade paper and chemical pulps.

The first installation was started in Sept. 1949 and was completed in April, 1950, and the second started in Oct. 1950 and was completed in Sept. 1951.

General appearances and design features of the building follow closely the treatment used in the other buildings of the mill layout. Structural steel, concrete and brick are standard materials of construction.

The bleach plant is fully automatic in its operation and requires one man per shift in attendance. The operation of the plant is smooth and is producing remarkably consistent results as to color and other qualities.

Process

Stock from brown stock storage is introduced to the bleach plant through a 28-inch diameter by 72-inch long Impco stock metering device equipped with a De Zurik size #3 bronze fitted reaction type consistency regulator. From here the controlled stock is pumped through the chlorine mixer to the 18 ft. x 76 ft. concrete tile-lined chlorination tower, equipment for which was furnished by Impco. From the tower, chlorinated stock flows by gravity to the 11 ft. 6 in. diameter by 16 ft. stainless steel Impco washer.

From the first stage washer, 16% consistent causticized stock passes through a 450-ton Kamyr double shaft steam mixer and is deposited by gravity to a 16 ft. diameter by 40 ft. high carbon brick lined caustic reaction tower. Dilution and agitation are accomplished at the bottom of the tower by means of six Kamyr Pelton nozzles and two Kamyr Tangential pumps.

Dilute stock from caustic tower is delivered to the 11 ft. 6 in. by 16 ft. Impco stainless steel washer thickener where bleach liquor and buffering caustic are added. From the shredder-conveyor, 15% consistency stock is passed through a 450-ton Kamyr double-shaft steam mixer and deposited on a 30-inch belt for distribution to the first stage hypo bleach reactors.

The first stage hypo reactors consist of six 12 ft. diameter by 24 ft. high steel shell, brick-lined, high density batch cells of 7½ ton capacity at 15% consistency. These cells are equipped with 100 r.p.m., Western Gear speed reducer TV-60, driving a 33½-inch diameter vertical conveyer screw.

Located under these hypo reactors is a 15-ton 2½% consistent stock dump chest of concrete construction, tile lined and agitated with two 60 in. diameter horizontal shaft impellers.

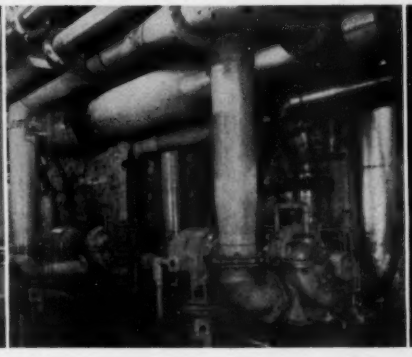
Stock from dump chest is pumped to the first stage hypo washer which again is a 11 ft. 6 in. by 16 ft. stainless steel unit and furnished by Impco. Again bleach liquor and buffering caustic are added to the stock sheet prior to shredding and conveying. The conveyer of this washer has a split flow arranged so that half the stock goes to each of two Kamyr vertical sealing pumps located directly under the discharge chute.

Because of space and retention time requirements, the second stage hypo was divided into two reactors. From high density stock at 15%, consistency is forced through ten-foot sections of pipe, fitted with connections for future chlorine-dioxide gas injection, two two single shaft Kamyr steam mixers which discharge into two 16 ft. diameter by 44 ft. high steel shell, tile-lined hypo reactors. Each reactor is again fitted with six Kamyr Pelton nozzles and two Kamyr tangential pumps, or agitators. Low consistency stock from

LAWSON P. TURCOTTE (left), President, and ERIK T. EKHOLM (right), Vice Pres. in Charge of Operations of Puget Sound Pulp & Timber Co., Bellingham, Wash. These were management men who were active in planning and overseeing the construction of the new Bleach Plant.

ERIC O. ERICSSON (left), recently promoted to General Superintendent, and VICTOR C. HANER (right), Plant Engineer, at Puget Sound Pulp & Timber Co. They had active roles in planning and building the Bleaching additions.

EXTERIOR OF BLEACH PLANT at Puget Sound Pulp & Timber Co. Right foreground shows part of Technical Control and Engineering Bldg. Bleach plant construction is in harmony with other major buildings of the company. Construction and installations were by Howard S. Wright Co. of Seattle.

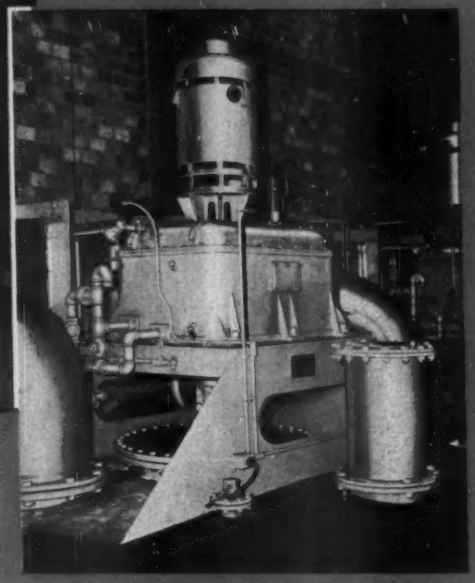


TYPICAL PIPING AND PUMP installation, all stainless steel, on base floor of Bellingham Bleach Plant. These Bingham pumps are driven by Fairbanks-Morse Type QZK motors. The piping shown here is all welded stainless steel fabricated by Alaskan Copper Works of Seattle.

BATTERY OF SIX TILE-LINED BLEACH CELLS, each of 7½ tons pulp capacity, at Puget Sound Pulp & Timber Co. These were furnished by James Brinkley Co., Seattle. Fabrication was by Flohr & Co. of Seattle.

for a MODERN BLEACH PLANT

USE Pacific-Western VERTICAL AGITATOR DRIVES



The recently completed addition to the bleach plant at Puget Sound Pulp & Timber Company, Bellingham, Wash., shows the small amount of floor space occupied by Pacific-Western TV-60 vertical agitator drives. Not visible in the photograph above, but equally apparent to progressive pulp producers, is the fact that Pacific-Western vertical agitator drives are less expensive to install and require an absolute minimum of maintenance. Best of all, the dependability of design based on more than fifty years of service to the paper industry makes Pacific-Western speed reducers the standard for nearly every problem of power transmission application. Call or write the nearest Pacific-Western plant or office for prompt quotation on your needs.

Illustrated is one of the six Pacific-Western TV-60 vertical agitator drives on James Brinkley Company agitators in use at Puget Sound Pulp & Timber's new bleach plant addition at Bellingham. Reduction ratio is 72.9 to 1 driving through a 100 HP motor at 1750 RPM. In the same bleach plant Pacific-Western S-57 single reduction herringbone speed reducers drive the Impco washers. More than fifty other Pacific-Western speed reducers are used throughout the entire mill on log haul, log transfers and conveyors as well as in pulp agitation.

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Representatives • 220 S. E. Oak St., Portland 14, Oregon
212 Ross Building, Denver 2, Colorado
Engineering & Machinery Ltd., 1266 W. Broadway, Vancouver, B. C.

CONTROL ROOM FOR THE BLEACH PLANT at Puget Sound Pulp & Timber Co. with automatic operation indicating, recording and control instruments supplied by Foxboro Co. The room is air-conditioned.

second stage hypo reactors is pumped to the final stage washing.

The final stage washing is done on a 11 ft. 6 in. by 16 ft. rubber covered Impco washer fitted with repulper, which discharges by gravity to the bleached stock storage chest.

Bleach Liquor Making Plant

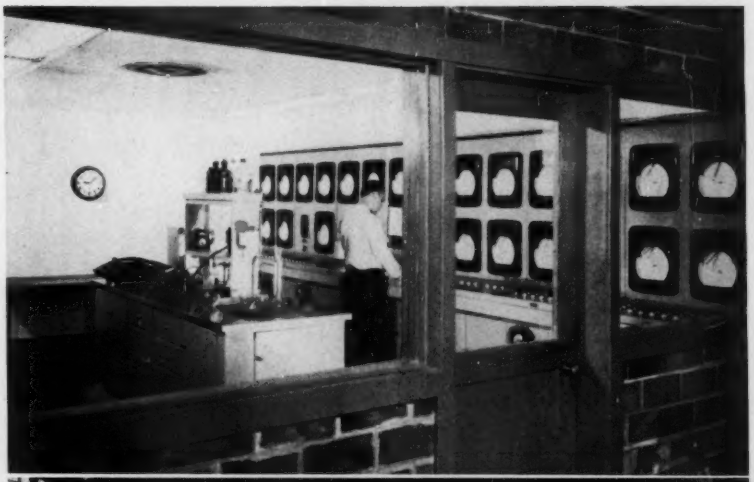
The bleach liquor plant in general follows the industry standard in arrangement of equipment and procedures in manufacture. However, this plant is arranged to make either calcium or sodium base hypochlorite liquor.

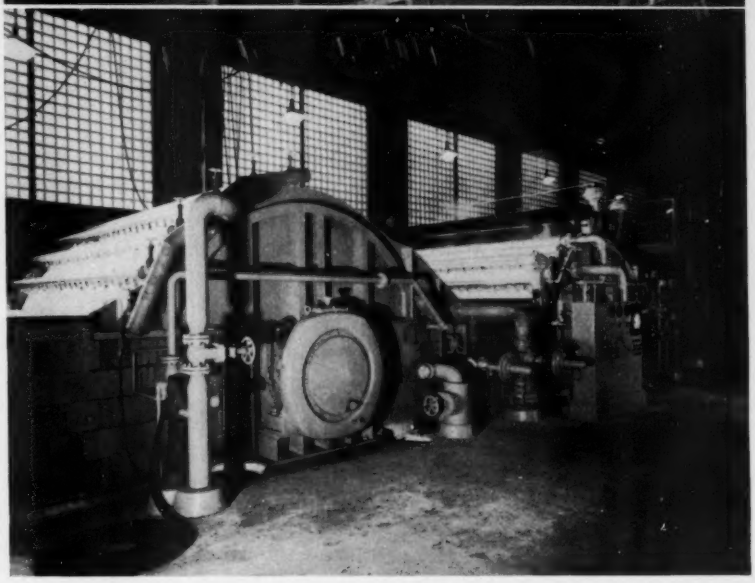
Bulk shipments of hydrated lime are handled with the Fuller-Kenyon vacuum system to an overhead steel storage tank. The Dorrco No. 5 lime slaker and classifier receives lime from a screw conveyer and the slaked product is pumped to storage at ¾ lb. of lime per gallon of water. Shipments of liquor chlorine and 50% caustic are handled by railroad tank on a double track adjacent to the bleach plant.

Liquor is batched, mixed and settled in three 22,300-gallon concrete tanks. Hooker Electrochemical Co. furnished two nickel chlorine evaporators used in parallel on a dual piping system from chlorine cars. For chlorine displacement, compressed air is furnished by two Westinghouse 30 cu. ft. compressors equipped with after coolers. Dry air is produced with one type BAC-25 dual absorber, self-cooled Pittsburgh Lectrodryer with manual switching and one type F-10 cartridge Lectrofitter. In addition to the above, a chemically packed absorbed was inserted in the air supply after the Lectrodryer.

Operation Control

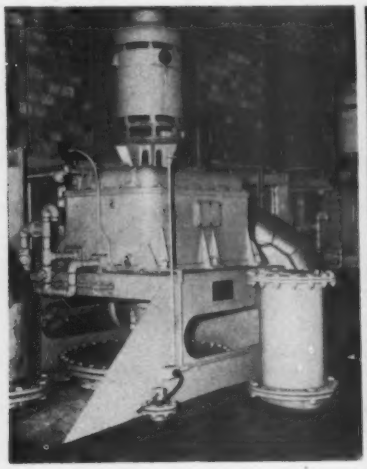
Caustic of 50% concentration is pumped from railroad tank cars to two 15,000 gallons steam heated steel storage tanks.

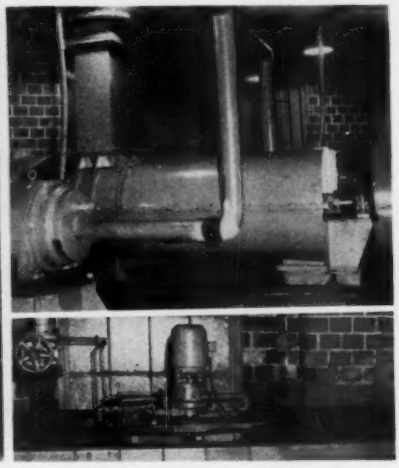




CHLORINE WASHER (right) and HYPOCHLORITE WASHER (left) in the new Bleach Plant of Puget Sound Pulp & Timber Co. at Bellingham, Wash. Unusually large, these washers were furnished by Improved Paper Machinery Co.

BLEACHER AGITATORS like this are in Puget Pulp's new Bleach Plant. General Electric motor is above the big Western Gear Works 100 hp. TV-60 reduction unit, driving a 33½ in. diameter vertical conveyor screw which Flohr & Co. fabricated for Jas. Brinkley Co. Below is a 7½-ton bleach cell which latter supplied.



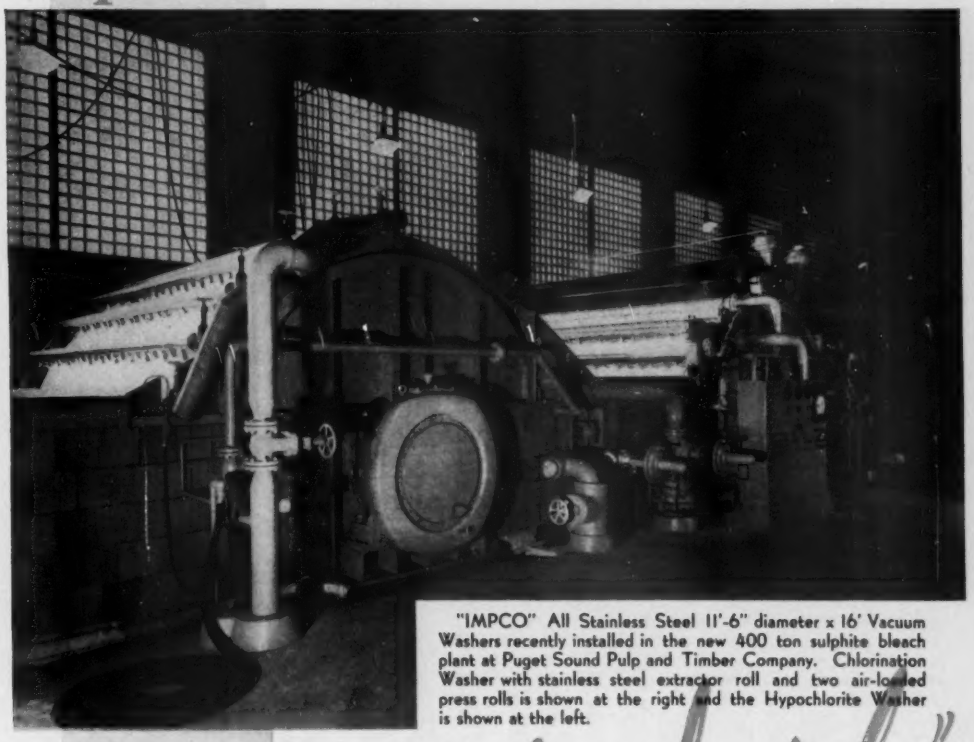


From storage, caustic flows by gravity to a 1½ in. Proportioneer air-operated Treet-O-Unit in which the concentration is reduced to 2½%, then stored for use.

One of the outstanding features of this plant is the centralized automatic process control and recording. Fundamentally, the process is continuous except that the first hypochlorite stage consists of six 7½-ton batch bleachers, which presented a control problem. This problem was overcome by installing a nine-function Taylor Sequence Flex-O-Timer with an over-riding auxil-

TOP VIEW SHOWS KAMYR double shaft stainless steel steam mixer for Bellingham Bleach Plant, supplied by Sandy Hill Iron & Brass Works. Below is DeZurik Size 3 Bronze Fitted reaction type consistency regulator on an 28 in. diameter x 72 in. Impco stock metering device.

Impco Bleach Plant Washers



"IMPCO" All Stainless Steel 11'-6" diameter x 16' Vacuum Washers recently installed in the new 400 ton sulphite bleach plant at Puget Sound Pulp and Timber Company. Chlorination Washer with stainless steel extractor roll and two air-loaded press rolls is shown at the right and the Hypochlorite Washer is shown at the left.

"tailored-for the job"

Stepping up the production of bleached pulp to keep pace with increasing demands is a big problem today. To do this - and yet maintain uniform high quality is another.

In both instances, these are problems which need individual solutions. To solve them, equipment designed for your own particular plant is needed.

That is why "IMPCO" "tailored-for-the-job" design can be the answer for you.

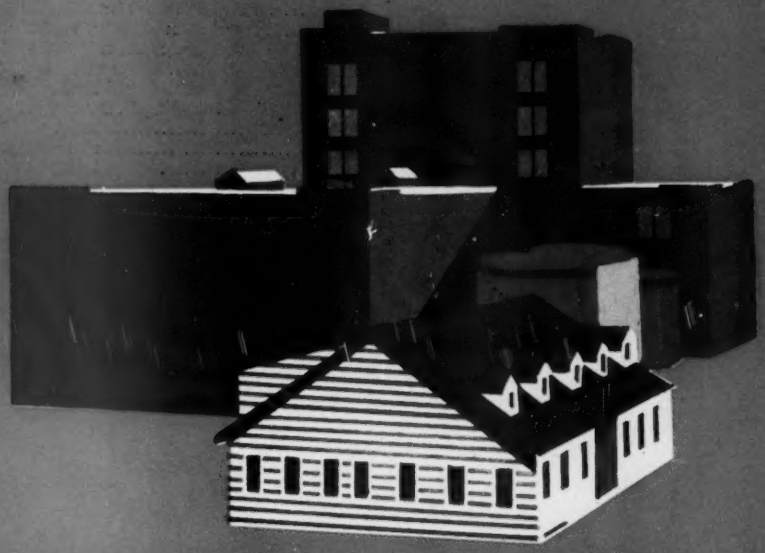
Every "IMPCO" Bleach Plant Washer is correctly engineered to fit your needs, to give you the necessary flexibility in tonnage and above all, quality production.

If you are planning a new bleach plant or an increase in production in your existing plant, "IMPCO" offers you a complete line of equipment for any type of system, including chlorine dioxide.

With an experienced "IMPCO" representative working step-by-step with your engineers, you can be sure of the answer that is best for you.

IMPROVED PAPER MACHINERY CORPORATION
Nashua, New Hampshire

Sherbrooke Machineries Limited manufacture similar equipment in Canada



SCIENTIFIC CONTROL

Paper chemists in Puget Sound's scientific laboratories control every step in the production of pulp. This control, plus the most modern equipment, insures the ultimate quality of Puget bleached sulphite pulp . . . long-fibred, clean and white. Puget pulp has found ready acceptance for many years all around the world.

PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON

iary timer for each bleacher. The sequence operations are set up as desired on the Flex-O-Timer controlling such operations as filling, shut off, reaction time, dumping dilution and setting up the next bleacher in line. In addition to the automatic control, each bleacher function may be manually operated at individual panels located adjacent to each bleacher. The order in filling and dumping batch bleachers may be varied by the operator at will by means of plug and jack system without disturbing continuity of operation.

Extensive use venturi pipe sections were used throughout the process for recording and controlling stock flows. The Foxboro D/P cells were used in conjunction with orifice plates, and are installed on all water, chlorine, caustic and bleach liquor for recording, indicating and controlling.

General Construction

Construction and equipment plans and details were prepared by the Engineering Department of Puget Sound Pulp & Timber Co., V. C. Haner in charge, assisted by Dan Robbins, chief draftsman; Allen McKay, chief electrician; Ivan Campbell, instrument engineer; Ralph Osterman, electrical engineer; Don Litch and Robert Anderson, draftsmen. All construction was supervised by the Puget Sound engineering staff.

Construction work and equipment installation were done by Howard S. Wright & Co. of Seattle, with John H. Harris as job superintendent. Pipefitting was sublet to Haskell Plumbing & Heating Co., Inc. of Bellingham and electrical installation to Howard E. Mills, electrical contractor, Bellingham.

(Equipment List on Next Page)

Wisconsin and Oregon Mills Get Together

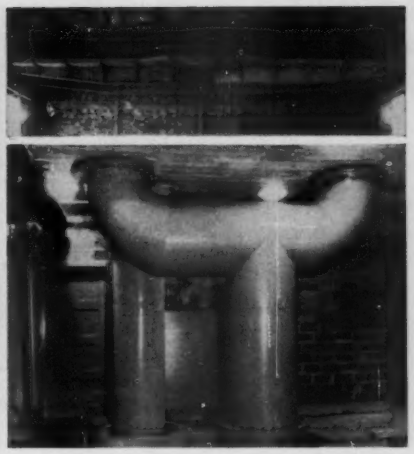
At request of Publishers' Paper Co., a sulfite mill at Oregon City, Ore., the Flambeau Paper Div., Kansas City Star Co., Park Falls, Wis., passed on to the Oregon mill full information on its methods of using sulfite effluent for a road binder. The method was put to work at the Oregon mill and is producing good results in improving unpaved roads.

Frank B. Whiting Dies On South American Trip

Frank B. Whiting, president of Geo. A. Whiting Paper Co., Menasha, Wis., and former president and recently board-chairman of Whiting-Plover Paper Co., Stevens Point, Wis., died in his sleep Mar. 29 in a Buenos Aires hotel while on a South American tour. He was 66.

Born at Omro, Wis., he attended Neenah schools and Princeton and his home was in Neenah. He was an adopted son of Geo. A. Whiting, founder of the two paper companies. He entered the industry in 1911 when the Menasha firm was founded and became president and treasurer in 1930 when Geo. A. Whiting died.

Frank B. Whiting then became president of Whiting-Plover, also, in 1938 and was chairman from 1950,, when his son, Geo. A. Whiting II, became president.



WHITE WATER TANK (above) and IMPCO chlorination tower with concrete stock chests in foreground. Stebbins Engineering tile lined the stock chests and white water tank was Neoprene-lined by Chemical Construction Co. of Seattle. These are at Bellingham Bleach Plant.

DEERE ENGINEERING CO. Seattle made the 25 ton bridge crane (above)[c] for Bellingham Bleach which handles big washing drums. In view below is sample of extensive stainless steel piping in this mill fabricated by several companies. This is 30 in. pipe to washer fabricated by Flohr & Co.

Puget Pulp's Record

Puget Sound Pulp & Timber Co. earned a net income of $3,578,923, or $4.60 a share, after $6,529,311 for federal taxes on income, in 1951, against $3,601,799, or $4.63 a share, after $2,133,097 for federal taxes, in 1950. The 1950 return included $656,094, or 84 cents a share, net capital gain; no comparable gain was reported for 1951. Total direct taxes provided for federal, state, county and municipal governments in 1951 were equal to $50.87 per ton of pulp production, vs. $20.39 in 1950 and $9.23 in 1949. Today's per ton tax rate is higher than the sales price in 1939. Federal taxes on income consumed 64.6% of taxable income in 1951, compared with 42% in 1950, and 38% in 1949.

Puget Pulp's production in 1951 consisted of 136,949 tons of pulp, 2,980,494 gallons of sulfite affluent alcohol, 7,638 tons of Lignosite, and 12,962 tons of paperboard.

Net sales and other income totaled $23,287,-228 in 1951, up from $15,002,341 in 1950.

Two Quebec Meetings

The summer meeting of the Technical Section, Canadian Pulp and Paper Association, will be held at Manoir Richelieu, Murray Bay, Que., June 18-21, immediately following the International Pulping Conference to be held at the same place June 16-18.

At the Pulping Conference subjects range from lignin to mechanical pulping. The Technical Section subjects include high pressure dryers, electrical maintenance, feed water treatment and operation of the Oliver sheer former at Gaspesia Sulfite Co., Chandler, Que.

Predicts Regulation of Forest Integration

Integration of forest operations will be insisted on by governments within the next ten or 15 years as a necessary commitment before timber lands are leased in Canada, in the opinion of A. K. Cameron, director of St. Lawrence Paper Corp., Montreal, who visited British Columbia recently. He says that there is far greater integration in the forest industry of the west coast than elsewhere.

President Burke of Union Cites Mill Opportunities

Vermont-born John P. Burke, international president of the AFL Pulp, Sulfite and Paper Mill Workers union, in a recent address before locals in Green Bay, Wis., said: "Workers in paper mills are fortunate to be associated in an industry where opportunities are greater than in most."

This was Mr. Burke's first visit to the Green Bay area in ten years.

A recent life story on Mr. Burke recalls he was born Apr. 21, 1884 in North Duxbury, Vt. His father was killed in the pulp mill at Franklin, N.H., in the era when there were no compensation laws, leaving his widow with a large family. Young John later was working in this same mill's finishing room when the union was first formed and he became a union enthusiast.

He was elected a Portland, Me., convention delegate in 1909 and attended every convention and wage conference since then. He was elected president-secretary in 1917. The union now has 137,000 members.

Great Lakes Liquor Used

Great Lakes Paper Co., Fort William, Ont., is the first Canadian organization to make practical use of waste sulfite liquor for road building.

Co-operating with the city of Fort William, more than 12,000 gallons were pumped into tanks and laid on adjacent roads as an experiment. Later, 25,000 gallons were used for the same purpose.

Use of sulfite liquor as road binding material is not new nor is it regarded as a real answer to the waste liquor problem as it is seasonal and limited in possibilities. Mills in Wisconsin, Oregon and Washington and other states have supplied it. This year Kimberly-Clark Corp. of Neenah, Wis. put four trucks to work there with plans that 13,000,000 gallons of spent liquor would be applied during the summer.

EQUIPMENT FOR THE NEW BLEACH PLANT

Tonnage control, chlorine tower agitation, and washers	Improved Paper Machinery Corp., Nashua, N. H.
Kamyr steam mixers, sealings pumps, tangential agitators and Felton nozzles	Sandy Hill Brass & Iron Works, Hudson Falls, N. Y., and Co., Seattle.
Stock chest agitators and 7½-ton bleachers	James Brinkley Co., Seattle.
Stock, white water and chemical pumps	Bingham Pump Co., Portland, Ore.
Caustic reactor and washer seal towers	Consolidated Western Steel Corp., Seattle.
Indicating, recording and control instruments	Foxboro Co., Foxboro, Mass.
Proportioneers' caustic proportioning and Schutte & Koerting water heating equipment	Barrett and Yost, Seattle.
Hypo continuous reactors	Puget Sound Sheet Metal Works, Seattle
Stainless steel fabricated piping and fittings	Alaskan Copper Works, Flohr & Co., Hydraulic Supply Mfg. Co., Puget Sound Sheet Metal Works, all of Seattle, and Eckstrom Sheet Metal Works, Everett, Wash.
Electric motors	General Electric Co., Westinghouse Corp., Fairbanks-Morse & Co.
Reduction units	Pacific-Western Gear Works, Seattle.
Rubber lined piping and tank lining	Chemical Proof Construction Co., Seattle, and Barthel Chemical Const. Co., Tacoma
3,000 KVA power center	Westinghouse Electric Corp.
Motor starters and control panels	Square D Co.
Tile and brick linings for chests and reactors	Stebbins Engineering Corp., Seattle
Bronze-fitted consistency regulator	DeZurik Shower Co., Sartell, Minn.
Dual 25-ton bridge crane	Ederer Engineering Co., Seattle.
Construction and installations	Howard S. Wright & Co., Seattle.

PUGET SOUND PULP *selected* BRINKLEY EQUIPMENT

for

★ BLEACH ENGINES
★ STORAGE CHEST AGITATORS
★ BLEACH LIQUOR AGITATORS
★ DUMP CHEST AGITATORS
★ SPECIAL DUMP VALVES
★ PULP CHECK VALVES

Manufacturers of Pulp Mill Equipment

JAMES BRINKLEY Co.

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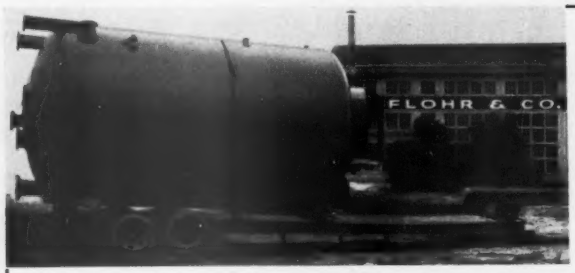

For
PUGET SOUND PULP & TIMBER CO.

Bleach cell manufactured for Jas. Brinkley Co. and ready to ship to the new bleach plant at Bellingham, Wash.

TANKS—STAINLESS PIPING
MANUFACTURERS OF

FLOHR & CO. METAL FABRICATORS 3920 6th Ave. N.W. Seattle 7, Wash.

PUGET SOUND PULP & TIMBER CO.

AGAIN SELECTS SEMTILE AND SEMPLATE

We are particularly proud of our installations of carbon brick linings for the reactors, Semplate linings for the towers and stock tanks, and the Semtile Construction of all washer vats, seal boxes and consistency regulator in the new bleach plant at Bellingham.

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1504 Tower Building — Seattle 1, Washington

SERVING the PULP and PAPER INDUSTRY

Puget Sound Pulp & Timber Co.'s new Bleach Plant at Bellingham, Washington

Howard S. Wright & Co. experience, trained personnel, and know-how have again played a vital part in the expansion of the Pacific Northwest's Pulp and Paper Industry. This ultra-modern Bleach Plant is one more outstanding improvement to the Puget Sound Pulp & Timber Company's plant. The Howard S. Wright & Co. organization has the experience and facilities to give the entire industry specialized service in all phases of its expansion program.

HOWARD S. WRIGHT & CO. Inc.

GENERAL CONTRACTORS

Seattle, Washington

NEUTRAL SULFITE EFFLUENT

POSSIBLE METHODS FOR RECOVERY AND USE

By W. E. Byron Baker

Manager of Research, New York & Penn Co., Lockhaven, Pa.

While there are in existence or under development a variety of semi-cooking methods practiced in a limited way on wood chips, including semi-sulfate and very recently a semi-soda process, all using chemicals in a relatively partial cooking cycle, I am limiting my reference to neutral sulfite semi-chemical pulping, which has in recent years become the fastest growing of pulping processes. In 1945 there were 10 mills owned by six companies producing 925 tons daily, while in 1950 there were 19 mills operated by 13 companies producing 2,115 tons daily. During 1951 at least a few additional mills started operation. One is under preliminary operation in Pennsylvania, and two other companies have under consideration operating at least partially under the neutral sulfite process.

Neutral sulfite semi-chemical pulping consists of cooking chips under pressure up to temperatures of 170° C. in a solution of neutral sodium sulfite buffered with sodium carbonate, under controlled conditions resulting in the solution of only 15 to 30% of the weight of the wood. It is clearly differentiated from the sulfite process by the use of a neutral or slightly alkaline liquor and produces a neutral or very slightly alkaline solution of the dissolved components. To the extent that such liquors reach the stream, in the form of spent liquor, they are not subject to the objectionable criticism that they are acid. In the case of the long practiced sulfite pulping, the wood substance during the cooking is dissolved by acid calcium bi-sulfite solutions, producing as spent liquors relatively highly acid solutions.

Consider another defining differentiation. The neutral sulfite semi-chemical process dissolves 15 to 30% of the weight of the wood, while the regular sulfite pulping process dissolves 48 to 55% of the weight of the wood. To a major extent this greater degree of dissolving action is due to the high acidity of the process. Let us consider an additional defining differentiation. The higher yields of the neutral sulfite process are realized because the carbohydrate hemicellulosic materials, pentosans, etc., and also a higher percentage of lignin remain in substantially original solid form in walls of the fibers. These materials are dissolved only to the indicated much smaller degree, and thus are incapable of producing pollution to the extent they remain in the pulp. Actually by remaining in walls of the fiber, they enhance the technical value of the fiber in papermaking, because especially the carbohydrate portions are increasingly effective in bonding fiber to fiber. Let us also specially remember that it is the dissolved carbohydrates which are present to a much greater degree in regular sulfite spent liquor which contribute the high 5-day biochemical oxygen demand, thereby producing the high sewage population equivalent pollution load.

Highly authoritative data on quantitative pollution equivalent loads applying to neutral sulfite semi-chemical pulping were difficult to obtain. After inquiring on the basis of neutral sulfite pulps in the lower yield range, such as would be bleached and converted into book papers or magazine papers, I was informed that the figure used by the Wisconsin Sanitary Water Board for the total semi-chemical wastes is 225 pounds 5-day B.O.D. Multiplying this figure by 6, as is the practice in Pennsylvania, gives a normal of 1,350 population equivalent per ton of neutral semi-chemical pulp. I am indebted to the Wisconsin Committee on Water Pollution, for the above figure. Less authoritative though presumably reliable figures, certainly if applied to somewhat higher yield pulps on the non-bleaching basis, place the load at 900 population equivalent per ton of neutral sulfite semi-chemical pulp. The normal values suggested by the Pennsylvania Section of the National Council for Stream Improvement applying to the manufacture of a ton of regular sulfite pulp were 3,000 to 4,000 population equivalent pollution load as determined by exhaustive tests as directed by the Sanitary Water Board of the Pennsylvania Department of Health two years ago. The normal pollution values suggested by the Department of Health as applicable to regular sulfite pulping on the basis of these tests are 3,000 population equivalent per ton as an average of tests over 3 consecutive operating days, and 3,500 population equivalent per ton on the basis averages of tests conducted over 8 consecutive operating hours. I have not been informed of any values suggested by the Sanitary Water Board of the Department as applicable to neutral sulfite pulp.

Recovery or Disposal Prospects

On the question of the recovery or disposal of the wastes in neutral sulfite semi-chemical pulping, I a mobliged to state that up to the present the process is in much the same situation as applies to regular sulfite pulping. There is no definitely demonstrated successful process for the recovery and reuse of these wastes in either case. The spent sulfite liquors from the regular process can be in substantial measure disposed of as by-products after neutralization, subsequent treatments, evaporation, and drying, and it must be noted that each of the regular sulfite mills in Pennsylvania are operating to the greatest extent possible on this basis. No other widely applicable methods for either utilization or disposal have been developed. Lagooning has been considered a temporary solution.

The neutral sulfite process is in some respects in a slightly better position in regard to recovery. Large scale operations have ascertained and demonstrated by continuous practice that semi-chemical spent liquor can be turned over to a considerably larger kraft pulp mill on adjoining site where it can be passed through

Another in Series in Semi-Chemical Pulping

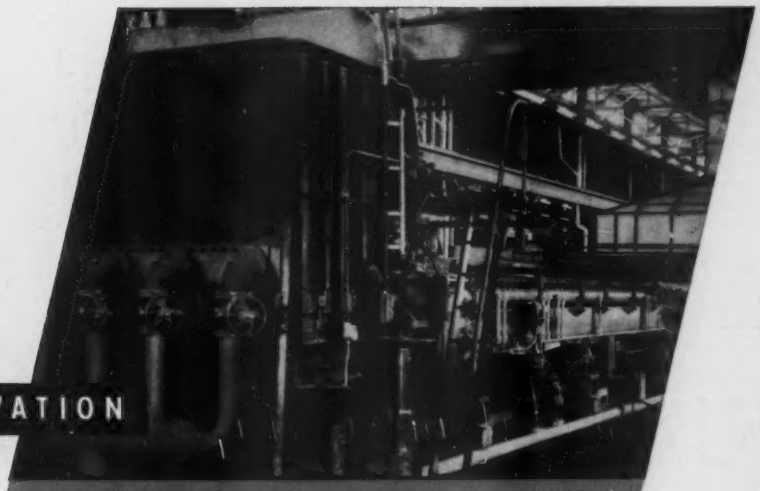
W. E. Byron Baker, author of the accompanying article—another in our series on semi-chemical pulping—has for 21 years been manager of paper research for New York & Pennsylvania Co., Inc. This paper was first presented at a meeting of the Pennsylvania Section of the National Council for Stream Improvement, and industry representatives have termed it "the first thoughtful presentation by the industry on the waste problems created by semi-chemical pulping."

Many of the top researchers in the industry have been working on these waste problems, but with no solution forthcoming as yet. It is easy to see why, since the problems of disposal of semi-chemical wastes are similar to those of sulfite, although the pollution, as Mr. Baker points out, is not as great.

The National Council reports that "two novel forms" of evaporation are being tested for concentrating neutral sulfite semi-chemical waste liquors by Council engineers in cooperation with equipment manufacturers. Ozark-Mahoning Co. is making preliminary tests on submerged combustion evaporation prior to operation of a pilot plant test program at Virginia Polytechnic Institute; and compression evaporation tests are to be made at Louisiana State University.

A recent publication of the Council on "Combined Treatment of Sanitary Sewage and Semi-Chemical Pulp Mill Waste" deals with research conducted at VPI and is now available to the industry.

Industry leaders working on these problems have emphasized the need for consideration of waste disposal along with construction of semi-chemical facilities. PULP & PAPER hopes presentation of this paper will point the problem and serve its solution.



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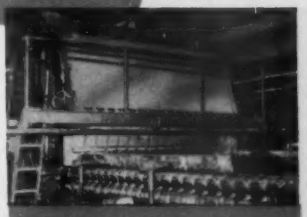
Downingtown's long experience, since 1880, in building paper making machinery has enabled it to recommend refinements and special design features to meet the usual or unusual problems of paper formation and production. As a result Downingtown Fourdriniers are conserving pulp, paper, power, material and labor.



Stainless steel head box on a Downingtown Fourdrinier.

Suction box arrangement on a cantilevered fourdrinier.

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DOWNINGTOWN FOURDRINIERS

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the recovery process, thereby supplying to the recovery cycle the necessary sulfidity, together with the equivalent soda.

There are also independent recovery processes under development for solving the neutral sulfite waste problem. There is comparatively little difficulty in concentrating the liquor by evaporation until a dissolved dry content of more than 50% is reached, under which conditions the concentrate, although of lower fuel value than regular sulfite liquor of the same concentration, can still be burned. Under ideal conditions this should produce a smelt consisting of a carbon free mixture of sodium salts convertible into a mixture of neutral sodium sulfite with some sodium carbonate. Realization of this aim is the crux of the question.

The devices employed for burning must be so designed, constructed and operated as to provide the maintenance of combustion conditions to assure attainment of this goal. If the concentrated liquors are burned under too highly oxidizing conditions, with too large excesses of air, sulfate is formed. Such sodium sulfate is not reusable in cooking. If combustion is carried out under reducing conditions, with a comparative deficiency of air, sodium sulfide is produced. Unless this sodium sulfide can by some feasible process be converted to sodium sulfite by controlled oxidation, the reuse of the liquor, prepared by redissolving the smelt, produces objectionable odors similar to those encountered in the kraft process, and causes the cooking to take place under more alkaline conditions than are in the best interest of the yield of pulp from the wood.

Processes Under Development

One of the processes for accomplishing these results has been under semi-commercial trial at a plant operated by the Mead Corp. Details on features of this process have not yet been made available, but there is no doubt they will be made known. The process is a development of the Mead Research Department, and I have been informed by the director that results thus far indicate ultimate success.

Another ingenious procedure has been proposed by Aries and Pollak, known as the Sulfox Process. In this process, the objective is to burn the concentrated liquor under such conditions as to convert the sulfur almost entirely to sodium sulfide. It is claimed nearly 90% of the sulfur remaining in the smelt will be in form of sodium sulfide. There will also be in associated therewith an approximately equal molal percentage of sodium carbonate. By a newly modified procedure the smelt is dissolved and subjected to air oxidation. Controlled large volumes of air at controlled temperatures must be used for this oxidation, which converts the sodium sulfide to sodium sulfite, and to make all this air available to the sodium sulfide at atmospheric pressure a special way of contacting has been devised, resulting in the ultimate production of dry powder comprising approximately the desired equivalent molal percentages of sodium sulfite and sodium carbonates, together with a small amount of sodium sulfate and a still much smaller amount of sodium thiosulfate.

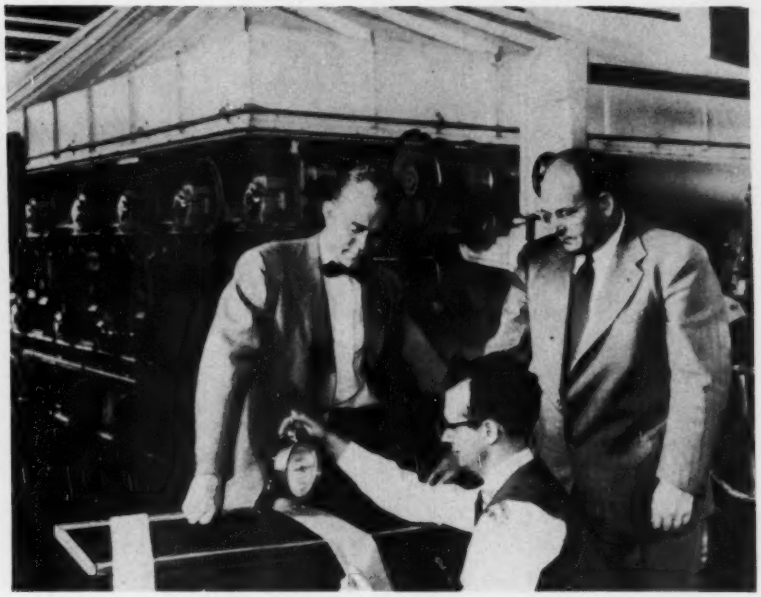
A lucid description of the Sulfox Process will be available in the forthcoming report of the Madison meeting of the Committee on Coordination of Research of the American Paper and Pulp Association. Further details are available from the Sulfox Corp. of New York. It may be mentioned that a claim has been made that the special contacting methods for the oxidation stage do not involve any newly designed equipment for the purpose, but the special adaptation of existing equipment which has been successfully used in somewhat analogous applications in other fields.

Other Recovery Possibilities

There are other developments in recovery and reuse now in an exploratory stage. Western Precipitation Corp. is interested in one. Another involved the substitution of ammonia for the soda.

I must also refer to the possibilities for disposal by aqueous phase air oxidation, which should dispose of all organic material contained in the spent liquor by conversion to carbon dioxide and water while the sulfur is changed to sodium sulfate. It is obvious that under these conditions all b.o.d. and color is destroyed with possible recovery of a portion of the heat liberated, although immediate reuse of the sulfur and the soda in the process constitutes a problem yet to be solved. It is, however, within the realm of possibility.

In conclusion, I have pointed out that the pollution load of the spent liquor from semi-chemical pulping is only a fraction of that of regular sulfite pulping and that in a few years, during which the recovery and reutilization problem will very likely be solved, the pollution load will be almost eliminated, as measured by B.O.D. and population equivalent, while the stream discoloration problem will be solved to a commensurate degree. The only limitation to the elimination of pollution and color will be imposed by the efficiency of washing methods available or under development, to permit the accomplishment of this on an economic basis to meet requirements imposed by government. Despite the fact that at present no recovery process is in commercial operation, there is no undue optimism in this prediction.



CAPACITOR PAPER

W. E. Bright, Rice Barton Corp., and R. J. West, General Superintendent of The Stevens Paper Mills, Inc., Westfield, Mass., watch Peter Della Luna, Stevens' mill superintendent, "miking" some capacitor paper made on their No. 6 Rice Barton machine. The capacitor, or condenser, tissue, is used as spacer insulation component in all dry type capacitors, and dimensional tolerances are plus or minus 0.00001-inches on paper whose total thickness is 0.0002-inches.

Gair Cartons Pulper

Shartle Bros., Middletown, O., has sold the 1000th Hydrapulper, destined when built, for the Gair Cartons mill at Piermont, N. Y. This will give Gair Cartons mills a total of 10 Hydrapulpers so far.

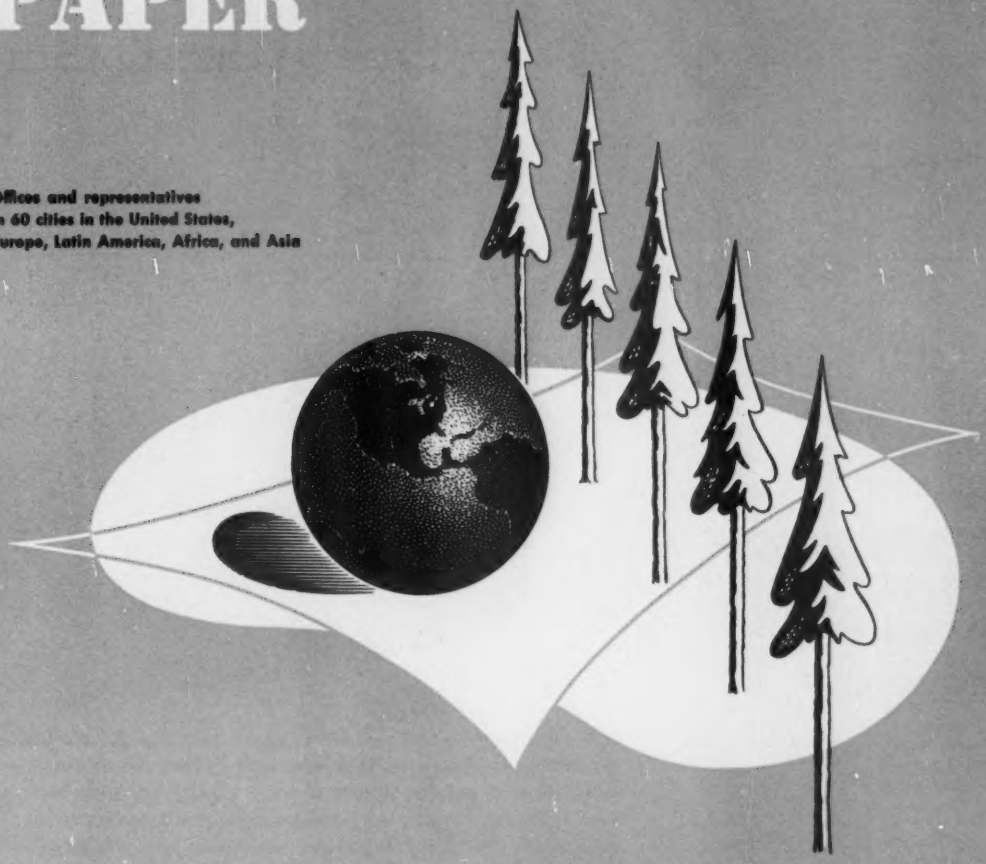
New Winder For Charleston Kraft Mill

Cameron Machine Co., Brooklyn, N. Y., has announced a new high speed paper mill winder, being built for West Virginia Pulp and Paper Co., Charleston, S. C. Known as Camachine Imperial, the machine has a 234 in. trim width with a 72 in. diameter rewind capacity, designed to operate at up to 7000 f.p.m. Slitting will be done by the score-cut method, utilizing the newly developed Hydrair slitting elements. These new slitting elements incorporate a principle which eliminates vibration of "bouncing" of slitter wheels at high speeds.

The Imperial, designed for durability, ease of operation and maintenance, is equipped with several features to reduce costly down-time between sets. Among features are provisions for rapid adjustment and spacing of the Hydrair slitting elements; power actuated rewind shaft loader and roll ejection mechanism; and automatic idler and compensating roll brakes. Power operated riding roll and rewind bearing lifts are also provided.

WOOD PULP
PAPER

Offices and representatives in 60 cities in the United States, Europe, Latin America, Africa, and Asia



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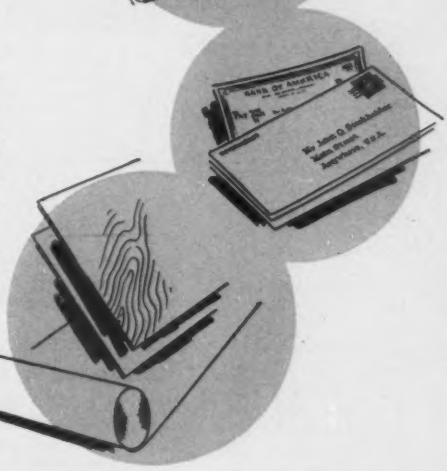
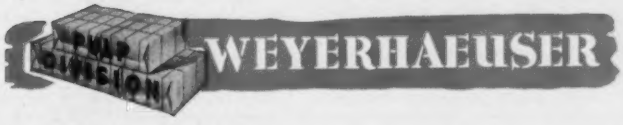
A Restatement OF THE WEYERHAEUSER OPERATING POLICIES



The Weyerhaeuser Timber Company is committed to the policy of operating its properties so that they will provide continuous and profitable employment for its workmen . . . and furnish uninterrupted supplies of forest products to the consuming public.

In brief, the basic policies which guide our forestry and mill management practices emphasize, first, recurrent forest yield by tree farming . . . which provides for the growing, protecting and harvesting of trees; secondly, whole crop utilization by grouping different kinds of mills on one mill site . . . which will permit processing all of every log at the mill for maximum use and dollar value.

Augmented by long range research and development programs, these practices will help establish a permanent forest industry . . . the continuous operation of our mills providing greater job security, a reasonable and necessary investment return, and achieving the ultimate objective of assuring quality forest products for use by our customers.



Personals

MIDDLE WEST NEWS

LLOYD LANG, probably better known as Curly, is continuing to live at 521 North Broadway, DePere, Wis., and doing consulting service for mills since leaving his post as former general superintendent at Green Bay Pulp & Paper. He represents G. D. Jenssen Co. Inc. He was formerly pulp development specialist with Crossett and Kimberly-Clark.

JOHN F. HALLADAY, a paper consultant since 1946, died suddenly March 27 in Elkhart, Indiana. Mr. Halladay was with Container Corp. for 11 years, and with American Coating Mills from 1940 to 1946.

W. H. HILDEBRAND, The Mead Corp., Chillicothe, O., is serving his second term this year as chairman of the Lake States Technical Committee of the American Pulpwood Association after his re-election at a winter meeting.

E. A. CHARLTON, president and general manager of Central Paper Co., Inc., of Muskegon, Mich., announces appointment of *RONDEAU O. WARNER* as sales manager of the company. Mr. Warner was for many years with the Minnesota and Ontario Paper Co., serving latterly as sales manager.

CLIFF KEMP, safety director, Thilmany Pulp & Paper, was a recent speaker before the Racine, Wis. Safety Council.

GEORGE CONWAY, young son of the president Hoberg Paper Mills, Green Bay, Wis., is now in charge of the I.B.M. department at that mill. He worked in the engineering department previously.

WILLIAM W. CROSS, who has been newsprint sales manager of Coosa River Newsprint Co. in Alabama since Jan. 1, 1949, has been named assistant general sales manager of Kimberly-Clark Corp., beginning his new assignment on May 1 in Neenah, Wis. Mr. Cross, a graduate of Massachusetts Institute of Technology, joined Kimberly-Clark in its Chicago sales office in 1939.

A. G. SHARP is general sales manager for Kimberly-Clark.

JAMES SOUTHON and *MORRIS KANE* are dividing the duties formerly held by the late Joe Kindleberger in the Market Research and Product Development of Kalamazoo Vegetable Parchment Co. Mr. Southon, who has been in charge of sales promotion, will also now head market research. Mr. Kane has been named technical director of KVP's lab and also will direct research. Mr. Southon, born in Parchment and son of the president, was graduated from Harvard in 1941, joining KVP sales. Mr. Kane, a native of Onondaga, Mich., moved to the Jackson area as a boy.

GUS KLAUS, of Northern Paper Mills, Green Bay, announced the program arrangements for the Superintendents Northwestern Division meeting May 9-10 at Rockford, Ill., and it includes a dinner at the Wagon Wheel near Beloit, Wis., and men's golf and bridge for ladies at Beloit Country Club.

GEORGE GERRITTS, technical foreman, Kimberly-Clark, Kimberly, Wis., was speaker at third in a series of technical staff dinners and talked on company products.

IN MIDDLE WEST NEWS

LLOYD "CURLY" LANG (left), who has joined staff of G. D. Jenssen Co., Inc., of Watertown, N.Y., designers of sulfite mill systems. Mr. Lang will continue to reside at 521 North Broadway, DePere, Wis., and will also do private consulting work for mills. Recently he was Gen. Supt. at Green Bay Pulp & Paper Co. and prior to that did development work for Kimberly-Clark and Crossett Paper Mills.

PETER TALBOT (right), who is moving to Chicago from his longtime home in Kalamazoo, Mich., to be at headquarters of his company—Williams-Gray Co., 221 No. La Salle St., Chicago 1. This company represents Lindsay Wire Weaving Co., Knox Woolen Mills and other lines. PAUL M. FOSTER is President of Williams-Gray.

JOURNEY WESTWARD

ROY H. KELLY (left), Resident Manager, and HAROLD SKINNER (right), Mill Supt., both of Marathon Corp., Rothschild, Wis., visited some of the larger Pacific Coast sulfite mills on a trip west in April. At Marathon's sulfite operation in Rothschild a program of improvement and expansion is being carried out.

CANADIAN NOTES

G. W. "Spud" CAMERON of Nelson, B.C., formerly in the lumber business in California and Washington before moving to British Columbia in 1947, has been appointed superintendent in Kootenay of the log purchasing division, Celgar Development Ltd., the Celanese Corp. subsidiary planning pulp-lumber industry at Castlegar, B.C.

DON BURRIS, newly appointed manager for the pulp and paper division, Canadian Ingersoll Rand Co., Montreal, planned to visit British Columbia late in April, during which time he was to be married to Miss Jean Marie Peterson of New Westminster. His predecessor with C-I-R was *JAMES STENSTROM*, now sales manager for Canadian Chemical (Celanese) Co. at Edmonton.

MAX W. MACKENZIE, formerly deputy minister of defense production in the Canadian government, has resigned to become executive vice president of Canadian Chemical and Cellulose Co., affiliated with Celanese Corp. of America, and owning outstanding stock of five subsidiaries—Columbia Cellulose, Canadian Chemical, Celgar Development, Canadian Petrocol and Canadian Cellulose Products. A native of Victoria, B.C., Mr. Mackenzie will make headquarters in Edmonton, Alberta.

RALPH KILLAM and LAWRENCE *KILLAM, Jr.* have relinquished their association with Alaska Pine & Cellulose, Vancouver, B.C., which they joined following the acquisition of B.C. Pulp & Paper Co. by Abitibi Power & Paper Co. in partnership with Alaska Pine Co. They are sons of Lawrence Killam, who for many years headed B.C. Pulp & Paper Co.

W.D. BENNETT, for several years assistant manager of the Woodlands Section, Canadian Pulp and Paper Association, Montreal, has resigned to enter the tourist lodge business on Lake Muskoka, Ontario.

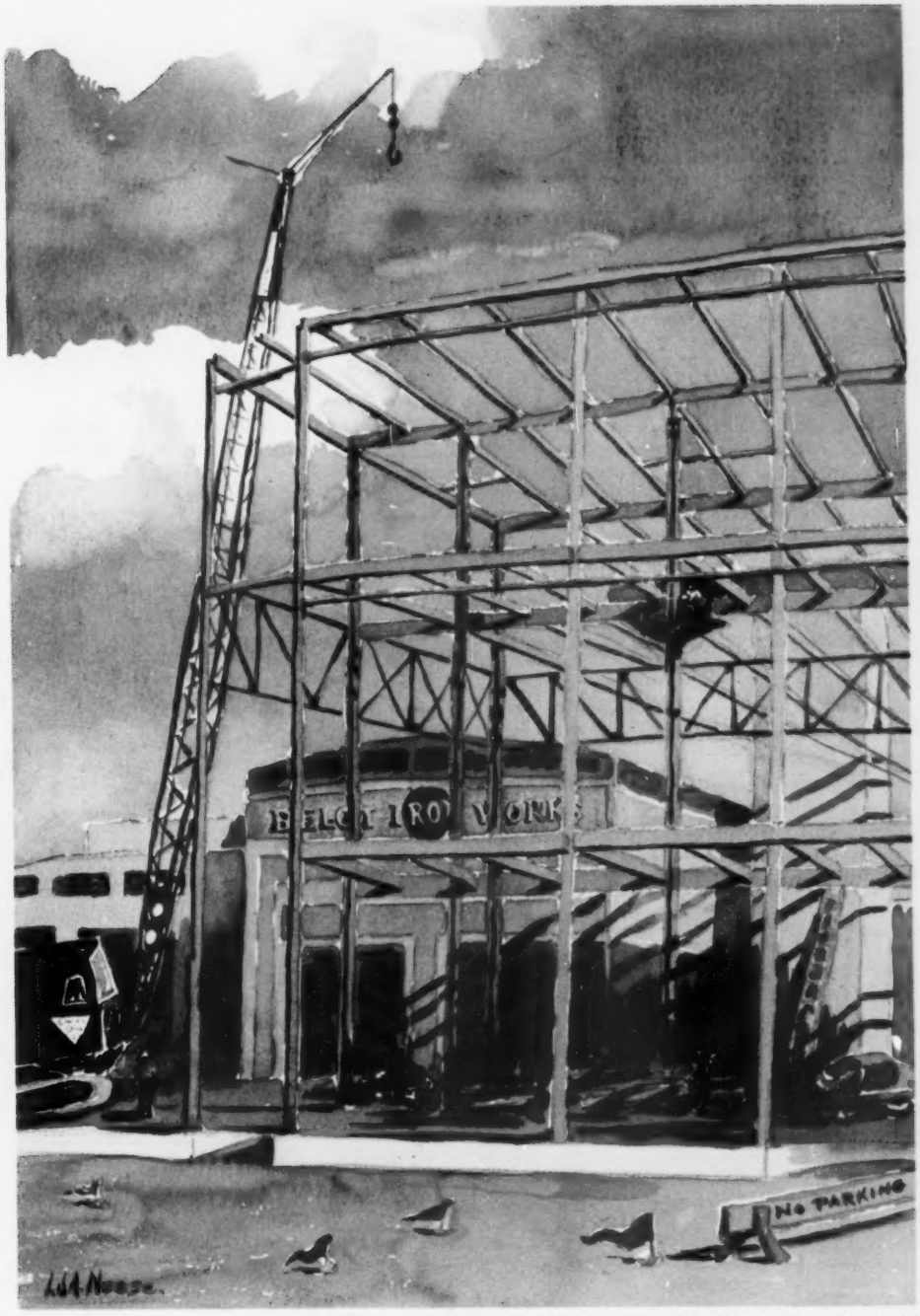
IN NEW KEY POSITIONS

HAMILTON S. CRAIG (left), who has returned to Neenah, Wis., headquarters of Kimberly-Clark Corp. after several years in Canada, and will assist in formulating long range mill plans in the plant and equipment program section of Staff Engineering. He was formerly Gen. Mgr. at LongLac mill, Terrace Bay, Ont., and later Director of Service Operations in Canada for the company. He was born in Detroit.

MICHAEL A. BROWN, Jr. (right), has been appointed Sales Promotion Manager of Rayonier Inc. Mr. Brown, who comes to Rayonier following advertising and sales experience with Plaskon and Monsanto, will be responsible for advertising and sales promotion activities under Dr. Russell M. Pickens, Vice President in Charge of Sales. He will also carry out the company's public relations program. Mr. Brown will immediately begin visiting Rayonier operations.

Coast Supts. Meet May 23

Gus Ostenson, manager of paper manufacturing, Crown Z, Camas, is arranging the program for a full-day spring meeting of Pacific Coast Superintendents at the Monticello hotel, Longview, Wash., on Fri., May 23, it is announced by the Coast chairman, A. C. (Ace) McCorry, St. Regis general pulp supt., of Tacoma. Local arrangements at Longview are being made by Gerald F. Alcorn, construction engineer, Pulp Div., Weyerhaeuser Timber Co.



WATER COLOR PAINTING BY L. J. A. NEESE

PLANT EXPANSION at Beloit Iron Works, Beloit, Wisconsin, will permit reorganization for increased efficiency in building high-speed, high-production Beloit paper machines.

Why Your Camachines

stay on the job!

Traditional Camachine dependability is backed by the greatest concentration of experience and ability that you'll find anywhere in the field of slitting, roll winding and constant tension equipment. Your Camachine is designed and built by *specialists* to meet the particular requirements of your plant.

Your Camachine provides for fast change-overs from job to job. You can set up for a new run in a few minutes time, with quick, easy adjustments in strip width settings, threading, speed, tension, roll density and slitter wheel pressure. Optional equipment, operating in smooth, semi-automatic sequence (including rewind shaft injector, hydraulic riding roll lift, roll ejector and hydraulic roll lowering table) makes roll changes easy.

Your basic Camachine design, developed through years of specialization and practical field experience, anticipates normal maintenance requirements by providing for easy accessibility, and interchangeability of parts. Also, with Camachines so predominantly the choice in paper, board and pulp mills everywhere, it follows naturally that Cameron has developed unmatched facilities for handling your normal replacement parts orders.

Your Camachine is built to do a better quality job, to change swiftly from job to job, and to *stay* on the job. For detailed information please request your free copies of Camachine mill-type winder bulletins.

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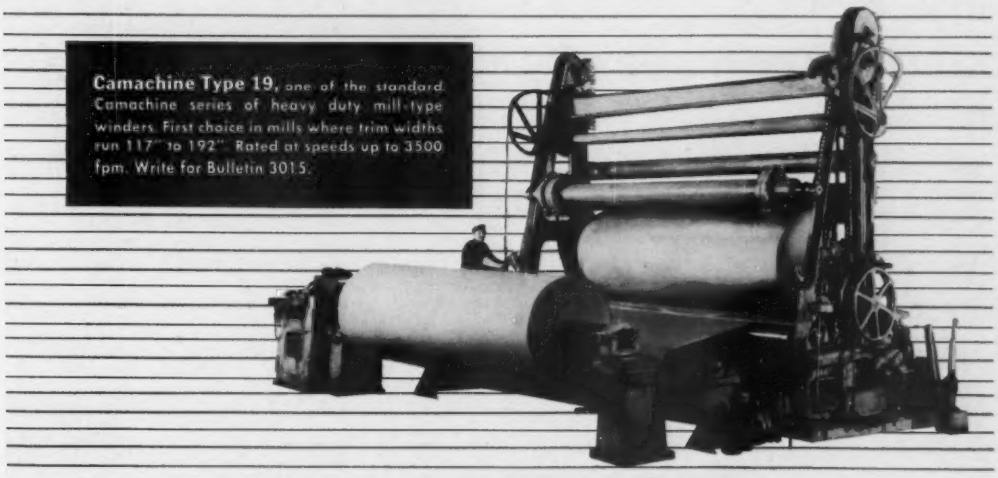

Camachine Type 19, one of the standard Camachine series of heavy duty mill-type winders. First choice in mills where trim widths run 117" to 192". Rated at speeds up to 3500 fpm. Write for Bulletin 3015.

CONSIDER DEPENDABILITY AND YOU'LL WIND UP WITH Camachines®

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ANYTHING

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that made it!

There's a brand new feature in the large Baldwin presses used to produce spectacular "Novoply"—the use of superheated water to transmit 70,000 Btu an hour to the wood. It's this intense heat—plus other features of these powerful Baldwin presses—that locks fast the unusual characteristics designed into the wood mass by U. S. Plywood's wood chemists.

These unusual presses are further evidence of Baldwin's ability to produce designs that keep step with the needs of pioneering manufacturers of hardboard and laminated wood panels—frequently to anticipate their needs well in advance of new developments. Which explains why producers throughout the country lean so heavily on Baldwin for special and standard presses for their production lines.

So if you want to improve quality, speed production, cut rejects on present board products—or are considering the development of new types of board materials—be sure to get the help of your nearest Baldwin representative.

The wood mass is first prepressed on 775 and 350-ton Baldwin presses. Then finished on 16-opening, 1820 and 873-ton Baldwin presses using superheated water.

Write today for *Bulletin 268*

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"A new material . . . with properties superior to those of any wood product yet developed . . .

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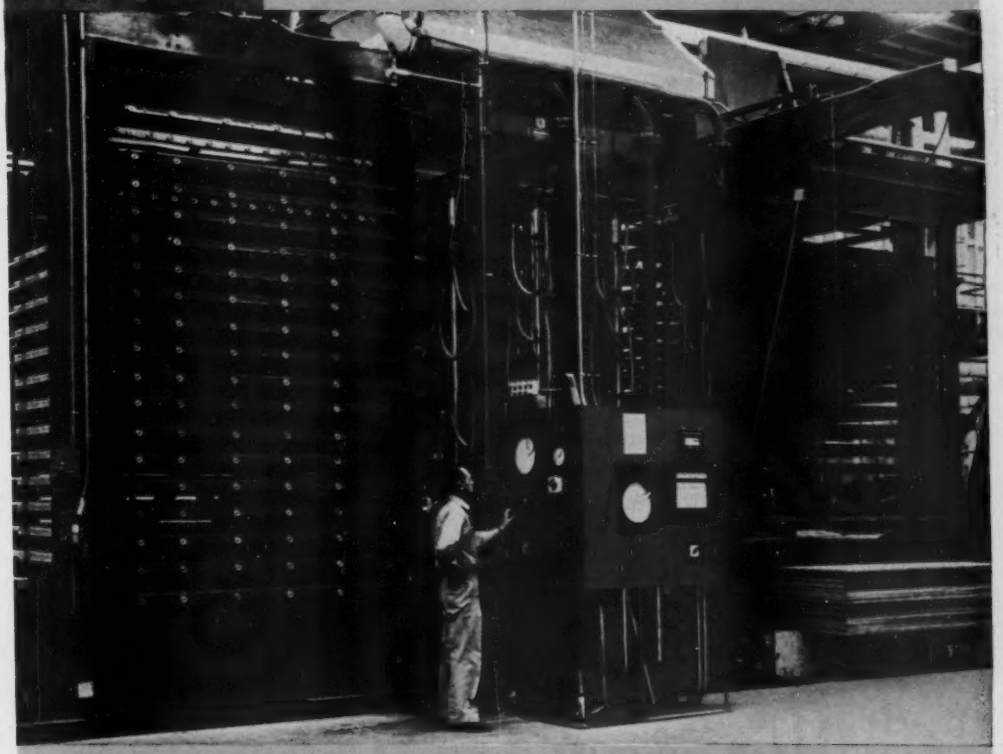
That's what U. S. Plywood says about Novoply

*T. M. Reg.
Patented; other patents pending



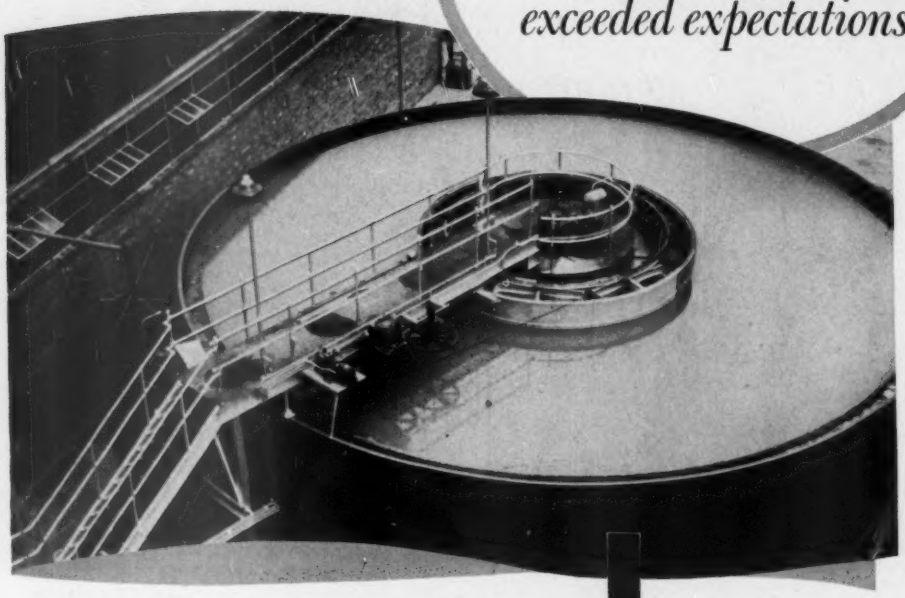
-LIMA-HAMILTON

PHILADELPHIA 42, PA. • OFFICES IN PRINCIPAL CITIES

The Norristown Magnesia and Asbestos Company had a difficult problem in the treatment of its asbestos fiber wastes. It experimented with many methods. A Cyclator pilot plant proved that it could meet the problem... and the actual installation is surpassing pilot plant results!

Norristown Magnesia and Asbestos Company Cyclator. Gilbert Associates, Inc., Consulting Engineers

Where others failed... **Cyclator®** *exceeded expectations*



THE PROBLEM

Treatment of asbestos fiber wastes from mill board, insulation and wool felt products containing varying amounts of talc, carbon black and scrap material. Problem further complicated by shock loads occasioned by dumping of beaters without warning, which increased per cent of solids 2 to 3 times.

THE SOLUTION

Installation of a 45-foot diameter Cyclator and a Vortex Grit Remover.

THE RESULTS

Suspended solids reduction ranging from 94.5% to 99.7%. Sludge concentration is easily held to between 1.5 and 2.5% by weight of solids which can be conveniently handled. Higher concentrations are possible, up to 6% having been obtained. Effluent is re-used for process water. Grit is removed from fibers, so that sludge can be re-used in mill.

SKILLED ENGINEERING

and painstaking research are responsible for the ability of Infilco equipment to handle really tough jobs, and contribute to cost-saving and space-saving superiority on any job. That's why outstanding concerns throughout the world invest in Infilco know-how and experience for the answer to their water conditioning, waste and sewage treatment problems.

For further information on the Cyclator write for Bulletin No. 850-A.

INFILCO

• BETTER WATER CONDITIONING • AND WASTE TREATMENT SINCE 1934

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FIELD ENGINEERING OFFICES IN 26 PRINCIPAL CITIES

World's Leading Manufacturers of Water Conditioning and Waste Treating Equipment

A NEW PULP SYSTEM

EQUIPMENT "FIRSTS" IN VIRGINIA

A wet end control system for their sulfate kraft pulp drying machine has been developed by The Chesapeake Corp. of Virginia, West Point, Va., that has proved satisfactory and flexible in operations between the extremes of 100 to 240 air dry tons per day, and which has resulted in a more uniform end product with a minimum of operating attention.

The system includes some equipment "firsts", since Chesapeake was among the first in the U. S. to install the Swedish-type Bird "Vibrotor" screens for kraft pulp, and first to employ the J. O. Ross Engineering Corp. continuous convected air pulp drier. The apparent efficiency of the control system and the interest in these "first", makes a full description of the Chesapeake set-up more than usual importance. Furthermore, the development of automatic controls for most of the system adds to the interest of this operation.

Behind the development, of course, was the desire to attain a more uniform end product, with flexibility in the automatic control system, and requiring a minimum of operators and operating attention.

Operation of the system can best be understood by describing the flow of materials on receipt from the pulp mill through the pulp machine, and showing the recycling of tailings and white water through the system (see flow diagram).

CHESAPEAKE CORP. OF VIRGINIA, West Point, Va., as seen from the Pamunkey River. Log-loaded barges are towed up this river to the mill.

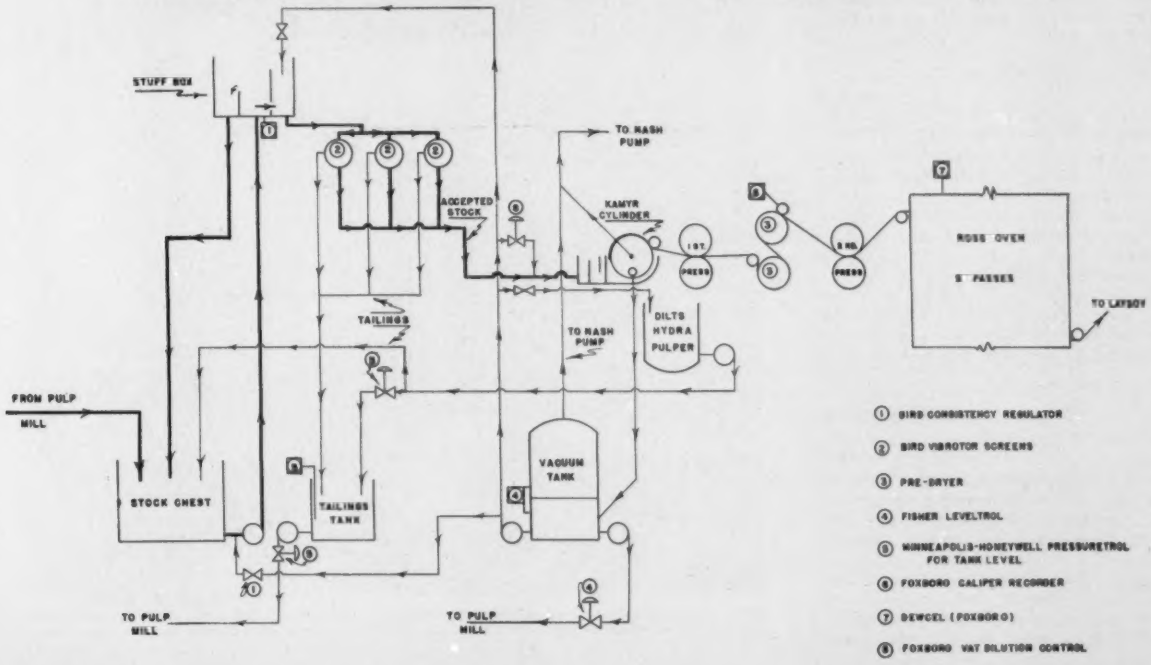
Vibrotor Screening

From the stock chest the stock flows through the Bird Machine Co. consistency regulator and then through the three Bird Vibrotor screens. The consistency regulator not only controls the basis weight on the machine but allows the Vibrotor screens to perform at a high capacity. The effectiveness of this performance can be seen in that a maximum of 80 air dry tons per day has so far been achieved through each Vibrotor screen with 0.012 in. cut plates.

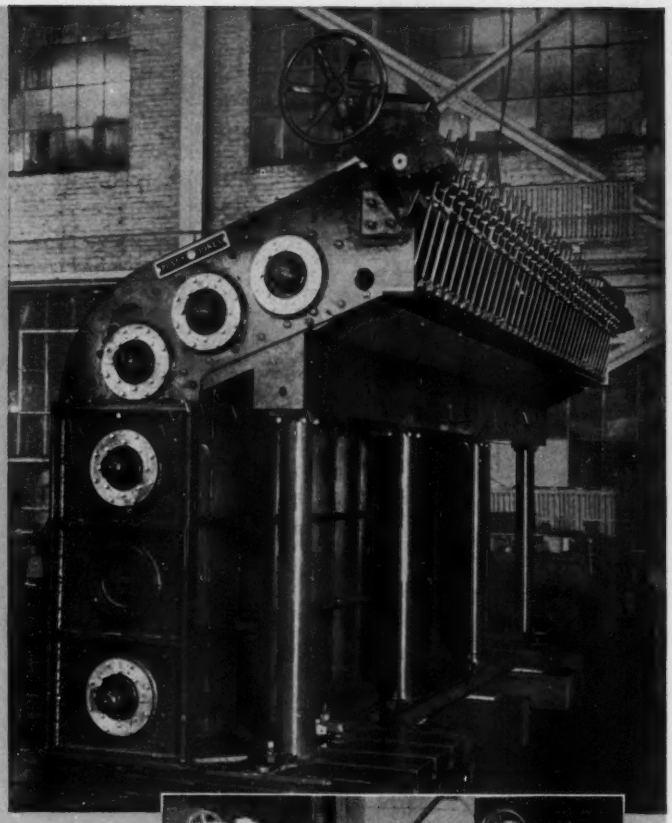
The principle of the Vibrotor screens is to perform screening at high consistencies (1.5% to 1.8%) through rapid, circular vibration. The vibratory action has a frequency of 1300 to 1450 per minute, and unbleached kraft is usually screened through .012 in. plates, as at Chesapeake, over a 40 in. screen cylinder face. The screens are compact, and the units are said to require 1/3 h.p. or less per ton.

The tailings from the Vibrotor screens to be returned to the pulp mill are collected in a small 5-foot tank on a level below the machine floor. (See diagram and photo). This is one of the most interesting parts of the system. The tailings tank, being small, does not require an agitator, and it is necessary to maintain a level in

FLOW DIAGRAM SHOWING OF PULP WET END CONTROL SYSTEM AT CHESAPEAKE CORP. OF VIRGINIA



Improved High-Speed Slice



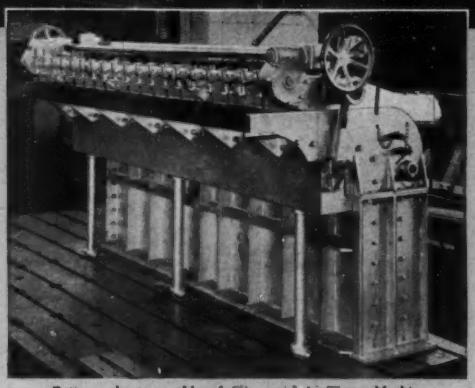
The Puseyjones Closed Pressure Slice, after several years of development and improvement, is now considered a "must" on today's high-speed machines.

Used in connection with the Puseyjones Flow Spreader, it provides an ideal approach flow to the fourdrinier, but may also be used with any form of multiple inlet type distributor when required by space restrictions or mill preference.

Now in operation on high-speed machines running on tissue, multi-wall bag, and under construction for liner board, it is the most compact and least complicated type of stock inlet available.

When rebuilding for higher speed and production, the saving in space usually permits lengthening the wire from 10 to 15 ft.

For complete details on the Puseyjones Closed Pressure Slice for your new or rebuilt machine, write or call us today.



Bottom: shop assembly of Slice used in Tissue Machine having 134" wire.
Top: shop assembly of Slice used on Multi-Wall Bag and Liner Board Machines. As shown, suitable for 228" wire.

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Established 1848. Builders of Paper-Making Machinery
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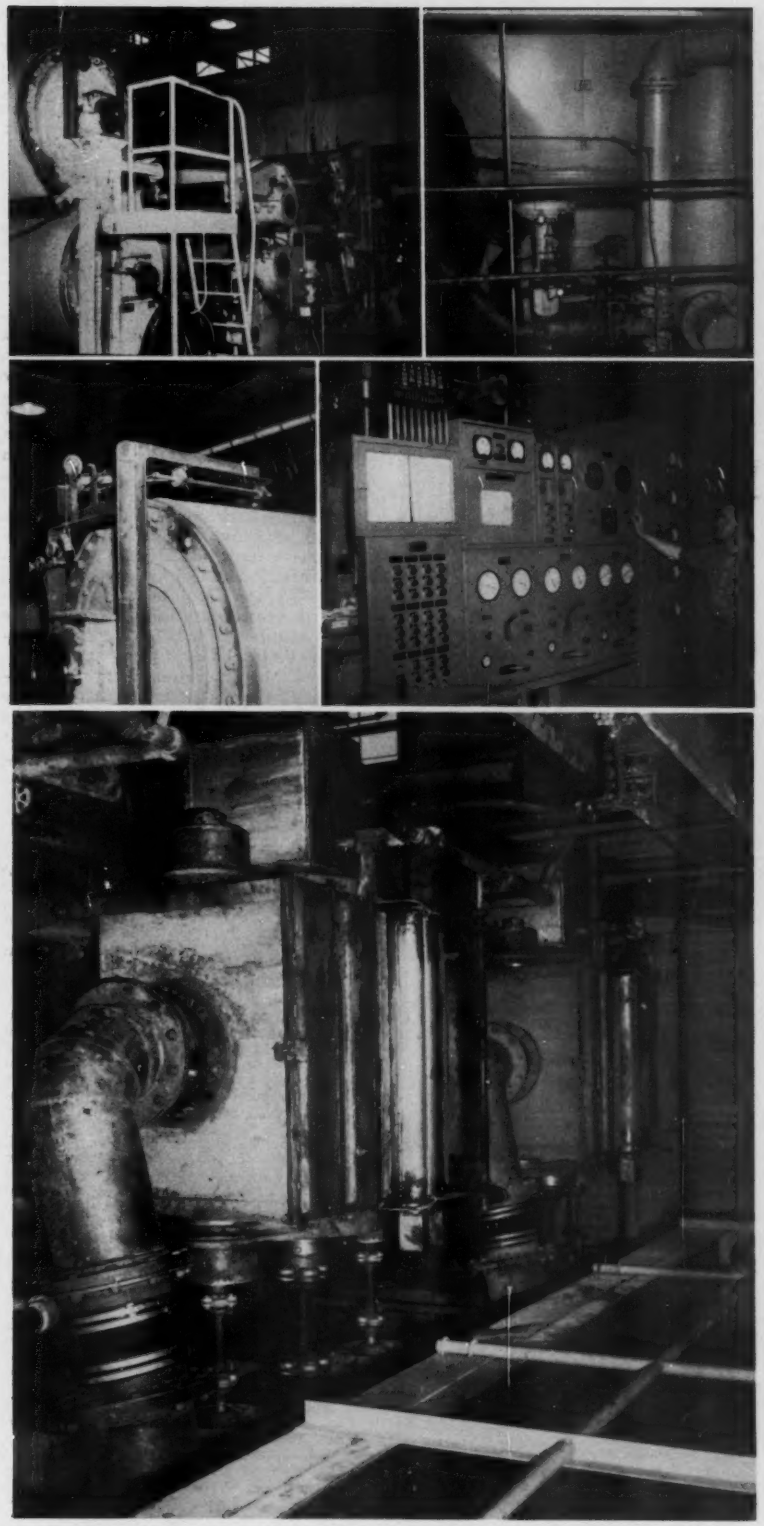


AT CHESAPEAKE CORP. OF VIRGINIA:
Top left: Sandy Hill Kamyr wet machine with pre-dryer rolls in left foreground, first press in center and Kamyr vacuum cylinder in right background. Bird Vibrotor screens can be seen above.

Top right: Bottom of Dilts Hydrapulper showing Minneapolis-Honeywell distribution valve in left foreground. Line at right front is to stock chest, and tank at extreme right is standpipe for pump suction.

Below left: Foxboro caliper control ("Position Transmitter") on pre-dryer roll. Operation permits operator to take immediate steps to correct faulty stock formation.

Below right: Westinghouse master control panel for wet end with electronic speed control for first press and pre-dryer rolls. At left are push button starters for stock and water pumps; section at upper left center are pneumatic Foxboro controls for loading first press; with Peacock controls for smoothing roll, press roll and couch immediately below. To right of operator is control panel for 9-pass Ross drying oven.

THESE THREE BIRD MACHINE CO. "VIBROTOR" SCREENS at Chesapeake Corp. of Va. are the first built in this country. They combine vibration and rotation to handle stock at higher than normal consistencies.

the tank so that it does not either spill over or run empty. In addition to receiving tailings from the screens, this small tank also receives broke from the Dilts Hydrapulper.

Control for this tailings tank is accomplished by means of a Minneapolis-Honeywell "Pressuretrol", which maintains level control, and through two Brown butterfly stock valves—one controlling receipt of broke from the hydrapulper, and the other which regulates recycling of stock from the tank to the pulp mill.

Wet Machine

Accepted stock from screens flows into the vat where there is a final consistency control. This is maintained by a Foxboro V-port water valve (see diagram—figure 8) operated by a Foxboro model 41 vat level control.

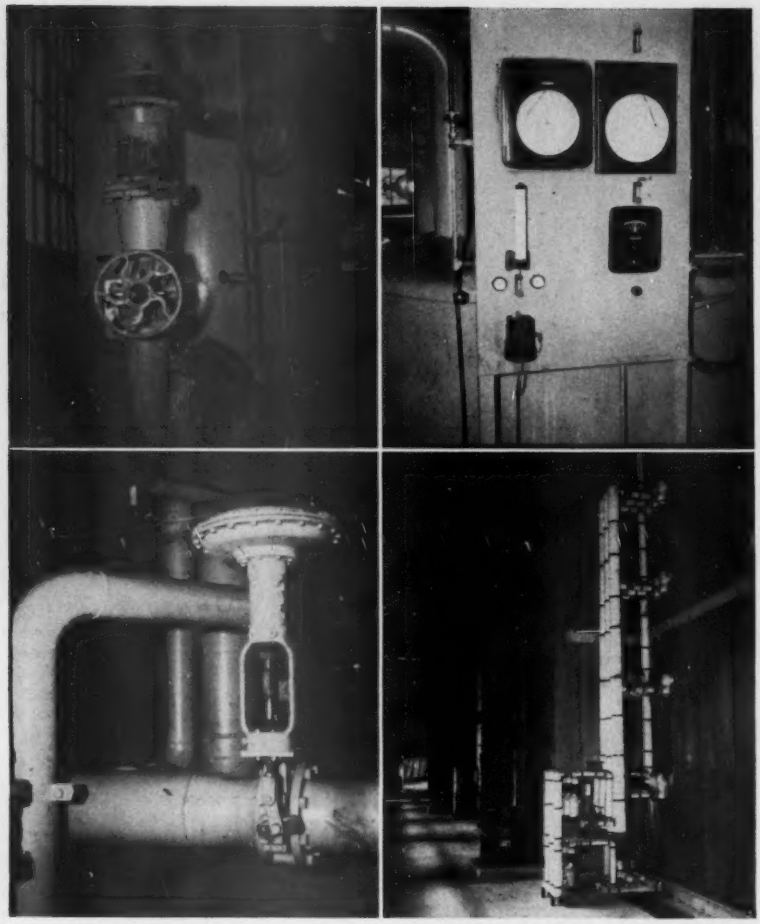
Stock in the proper consistency is now received by the Kamyr wet machine with water removal effected on the Kamyr vacuum cylinder. Rolls running on the cylinder mould help achieve a high degree of dryness before the sheet is delivered to the first press.

White water from the Kamyr vacuum cylinder is collected in a vacuum tank and recycled, for the most part, within the system. However, a certain excess of white water must be returned to the pulp mill, and it is at this point that another interesting control in the Chesapeake system is employed. A Fisher vacuum tank "Level-Trol" unit provides the control. By movement of a float in the control pipe attached to the tank, a butterfly valve is pneumatically operated so that excess white water can be returned to the pulp mill.

Hydrapulper Step

The final part of the system brings in a Shartte-Dilts Hydrapulper which handles broke from the pulp machine. Stock from the Hydrapulper goes either to the tailings tank (as described above) or can be pumped back to the stock chest. The Hydrapulper is equipped with a Minneapolis-Honeywell distribution valve to effect the control from this equipment.

Following the vacuum mould, the Kamyr wet machine consists of a first



INTERESTING PART IN CHESAPEAKE CORP. OF VA. CLOSED SYSTEM is tailings tank (upper left) which receives tailings from Bird Vibrator screens and broke from Dilts Hydrapulper. Tank is equipped with Minneapolis-Honeywell "Pressuretrol" which regulates returns to pulp mill. When Hydrapulper begins to operate and level in tank rises, valve to pulp mill gradually opens to handle increased flow of stock.

Upper right—Wet machine control includes this panel on machine floor. Foxboro instrument at upper left records caliper of sheet taken by instrument on pre-dryer roll. Brown instrument at right records stock in chest, and Foxboro instrument at lower right controls head box consistency.

Lower left—One of key points in control of stock is this Fisher Continental butterfly valve controlling pulp mill returns from vacuum tank which takes off from Kamyr cylinder. White water from tank may be returned (1) to pulp mill; (2) through Bird consistency regulator to line from stock chest; or (3) direct to stuff box.

Lower right—Rear view of J. O. Ross Engineering Co. Pulp Drier at Chesapeake, first of kind in the country, showing fan towers and steam lines. There are three sections in oven unit, with five Sturtevant "Axiflo-Fans" in each section directing heated air across pulp sheet, at five different height levels.

press, pre-dryer rolls, and a second press. Each section of the machine is driven by separate direct current Westinghouse motors, with electronic speed control of the first press and the pre-dryer rolls.

Mounted on the pre-dryer top roll (see photo) is a Foxboro pneumatic position transmitter connected in such a way as to record sheet thickness. This provides the machine operator with an immediate check so that he can tell when something is wrong and take steps to correct the situation.

All these operations at the wet end are observed and controlled from a master Westinghouse control panel. This panel has electronic speed controls for the first press and pre-dryer rolls; push button starters for the stock and water pumps; pneumatic controls for loading the first press; and also controls for the 9-pass Ross drying oven.

Ross System

The Ross oven at Chesapeake, as mentioned previously, was the first of its kind installed in the country, and effects the continuous drying of pulp by convected air. The wet pulp sheet is introduced at the top of the drier, and on nine passes through the oven on individual cross bar conveyors it emerges at the far end in a dry state. There are three sections in the oven unit, with five Sturtevant "Axiflo-Fans" in each section directing the flow of heated air across the pulp sheet, at five different height levels.

Drive for the oven conveyors is synchronized by means of a tachometer generator with the speed of the second press, with the draw adjustment at each end of the drier being handled by electrical adjustment by trimmer rheostats.

When the Ross system is within design conditions, the drying capacity may be throttled to control the moisture content of the finished product. This actually controls the dew point of the exhaust by operating the inlet and outlet dampers by a Foxboro electronic dew point controller. Called the "Dewcel", this instrument provides a continuous record in dew point readings, unaffected by air temperatures. The basis of its operation is the behavior of hygroscopic salt in the presence of water vapor. When the lithium chloride salt in the instrument absorbs moisture from the air in the oven drier, it becomes an electrical conductor so that current passes between a pair of silver wires wound around the instrument tube. Passing of the current raises the temperature in the instrument until equilibrium is attained. This equilibrium temperature is measured with a conventional temperature bulb—and the result is the dew point—or the temperature at which moisture will condense out of the air.

Results are the justification for the development of any system. And Chesapeake officials have experienced good results with the wet end control system for their Kamyr pulp machine, as well as with their new Ross oven.

Other Articles On Chesapeake Corp. of Va.

The Chesapeake Corp., of Va., part of the operations of which are described on these pages, was established in 1914. Originally a kraft pulp mill, a paper mill was added at West Point in 1930.

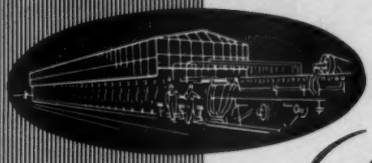
The story of the forest management program of Chesapeake was told in the October, 1951, issue of PULP & PAPER. In the same issue another story told something of the extensive improvement program of the company, which has included in the past two years the installation of a modern bark boiler system; re-vamping of woodyard conveying system; the completion of a fourth stage in a kraft brown stock pressure washing system; and the placement into operation of a flash-drying system for lime recovery.

Chairman and president of Chesapeake is Elis Olsson. As president, he succeeded M. C. McDonald, who went to Great Northern Paper Co. Erik Zimmerman is general superintendent of the operations; E. M. Dozier is superintendent of the pulp mill; and Henry Vranian is research director and assistant general superintendent.

Paper Mills Account For Over Third of Freight

Union Bag & Paper Corp. receives or sends 30.5% of all the freight that comes or goes from the city of Savannah, Ga. The mill routed and handled 66,813 cars in 1951. Counting traffic to and from Southern Paperboard Corp. at Savannah in addition, the paper industry's share of city traffic probably is well over one-third of the total.

UB's freight bill in 1951 of $11,000,000 accounted for $588,440 tons (exclusive of pulpwood) on five railroads, an additional 64,325 tons by barge, tanker, truck, plane, etc., (most of this total tonnage being shipped paper, boxes and bags) and also 689,072 cords of wood brought in by r.r. cars, 92,661 by trucks and 29,783 by barges.



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SEMICHEMICAL PULPS

USING PACIFIC COAST WOODS

By John N. McGovern

U. S. Forest Products Laboratory, Madison, Wis.

Four important Pacific coast woods showed considerable promise for use in paperboards and bleached paper products as a result of pulping experiments by the semichemical process at the U. S. Forest Products Laboratory. The species pulped were red alder, old and second growth Douglas fir, western redcedar, and Western hemlock.

The work was a part of the federal laboratory's research in pulping of U. S. woods by the semichemical process. Advantages of the process, as well recognized, include higher yields than are possible with full chemical processes, particular suitability for pulping hardwoods, and products of special serviceability, such as corrugating board and glassine, book, and bond papers. The process is rapidly gaining prominence, and numerous mills have adopted it to make products ranging from container board to high-grade magazine paper.

In the tests with western woods, neutral sulfite semichemical pulps were prepared from all four species and, in addition, sulfate semichemical pulps and bleached neutral sulfite semichemical pulps were made from red alder and Douglas fir. Corrugating boards and liner boards of excellent quality were obtained from some of the pulps. Greaseproof packaging papers and lithograph-type printing papers meeting commercial quality requirements were made from the bleached semichemical pulps.

Pulping characteristics of the Pacific coast woods were compared with those of two Lake States woods tested previously, jackpine and aspen, for certain yields of pulp.

When pulped by the neutral sulfite semichemical process, red alder, a Pacific coast hardwood, required more chemical and gave a pulp with a higher lignin content than did aspen, a Lake States hardwood used widely for semichemical pulping. The Pacific coast softwoods, however, required less chemical and much shorter cooking times by this process than did jackpine, an eastern softwood, although they gave pulps higher in lignin content.

Western hemlock required more sodium sulfite and a longer cooking time than the second growth Douglas fir, while western redcedar took a much shorter time with about the same amount of sulfite. The hemlock pulp, however, was lower and the redcedar pulp higher in lignin content than the Douglas fir pulps.

The suitability of a wood for semichemical pulping depends considerably on its content of lignin, resistant cellulose, and hemicelluloses and on the relative rates of removal of these constituents. This suitability can be measured by the chemical and the time required for pulping and by the lignin content of the pulp for a given yield (*Table 1*). On this basis, the western redcedar apparently used up a large part of the pulping chemical in a short time in removal of extractives and of readily attacked hemicelluloses and used only a small part for the less reactive lignin. In comparison, Douglas fir with its lower lignin and extractive contents apparently used more chemical in the removal of lignin and thus required a longer time for pulping. In semichemical pulping of jackpine and Western hemlock, the removal of lignin is also the most important reaction and results in high chemical and time requirements. The difference in the semichemical pulping characteristics of red alder and aspen can be largely explained by the higher lignin content of the red alder (24% as comparent for aspen).

The basic chemical requirements for neutral sulfite semichemical pulping of the woods were relatively high. Pulp yield decreased regularly with increases in the amount of chemical and in time required for pulping to a given residual sodium sulfite content in the spent liquor.

The yields of red alder pulp obtained by sulfate semichemical pulping were roughly 10% higher than those of the Douglas fir sulfate semichemical pulp for a given amount of active alkali consumed in pulping. This agrees with the usual trend of differences in yield between many hardwoods and softwoods of the temperate zone, chiefly caused by differences in chemical composition. Red alder pulp made in a yield of 52% had a considerably lower lignin content, 3.3%, than that of 7.2% for the Douglas fir pulp made in a yield of 44.9%. Although analyses were not made, it is reasonable to presume that the red alder semichemical pulps would also be lower in lignin content than the Douglas fir pulps when compared at the same yields or the same chemical consumptions.

Kraft semichemical plps required appreciably less chemical (sodium oxide) than the neutral sulfite semichemical pulps made in the same yield (*Table 1*), mainly because of the stronger pulping action under alkaline conditions than under neutral conditions. There was an inverse relationship between pulp yield and amount of active alkali consumed in pulping.

Fiberizing Energy

The red alder pulps required 10 to 17 horsepower-days per ton of pulp or only one-third to one-half as much fiberizing energy as did softwood pulps of equal yield and freeness. The softwood pulps made in yields of 70% or more generally required two passes through a 250-hp. disk refiner to produce a well-fiberized pulp suitable for corrugating or liner boards or for bleaching, compared with one pass for the red alder pulp.

Consumption of fiberizing energy also

Madison Lab Pioneered Semichemical Processes

This is another in the series of articles which have featured issues of PULP & PAPER for the past two years on semichemical pulping processes. Most of these articles have described this important new field in the industry as it has been applied by pulp and paper mills in making various kinds of paper from corrugating to book paper, glassine, etc.

It is important because of the high yield of pulp from wood—also it has extended pulping to many hardwoods and little-used wood species.

Dr. McGovern, who for years has pioneered in the semichemical studies made at Madison, Wis., gives credit for much of the research work on Pacific Coast pulps to E. L. Keller and R. M. Kingsbury, chemists, and J. S. Martin, chemical engineer, of the lab staff. He also acknowledges cooperation from Pope & Talbot, Inc., prominent Pacific Coast timber industry, and Mead Board Sales, Inc., Cincinnati.

This article is a condensation of a technical paper presented at a Pacific Coast TAPPI meeting in Bellingham, Wash., Sept. 26, 1951.

Original work on semichemical pulping began in 1925 at Madison, where the U. S. laboratory is maintained in cooperation with the University of Wisconsin. This work led to the original plant of this kind at Knoxville, Tenn., in that year, where globe rotary digesters and Bauer mills were used to make a 75% yield pulp from chestnut for corrugating. Apparently just about every mill lthat has gone into semichemical pulping since the Mead Corp. teamed with the Madison staff to pioneer the process a quarter of a century ago, has likewise used information and services of the laboratory.

Many an executive of mills now making semichemical has told PULP & PAPER that his company owes a great deal to the Madison Pulp and Paper Division for its help.

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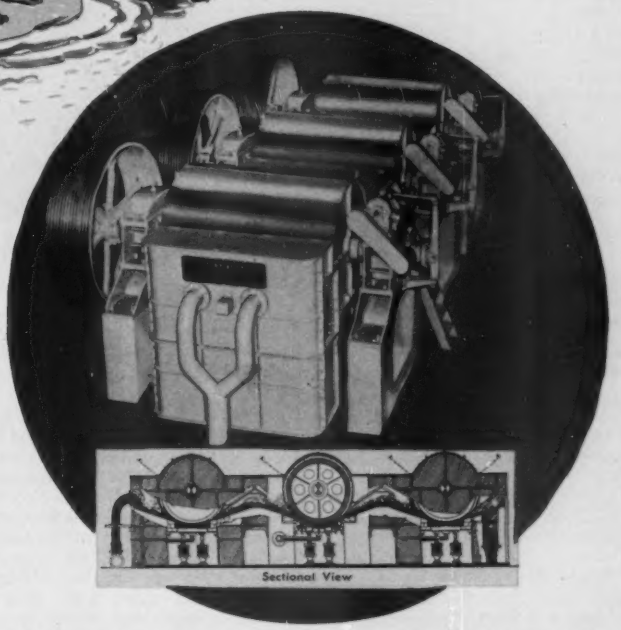

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TABLE 1—COMPARISON OF SEMICHEMICAL PULPING OF SEVERAL PACIFIC COAST AND LAKE STATES WOODS

Species	Pulp yield	Chemical requirements				Pulping time at 170° C.	Lignin content of pulp	Strength properties of pulps at 450 cubic centimeters freeness (Canadian-Standard)			
		Sodium sulfite	Sodium carbonate	Sulfur	Sodium oxide			Bursting strength	Tearing resistance	Folding endurance	Test-sheet density
	Percent	Percent[1]	Lb. per ton of air-dry pulp			Hr.	Percent	Pts. per lb.[2]	Gm. per lb.[2]	Number of double folds	Gm. per cc.
Neutral Sulfite Semichemical Pulps											
Red alder	75	15.2	383	92	224	2.6	15.8	0.64	0.90	3	0.61
Douglas-fir, Second-growth	75	18.0	439	110	257	3.4	18.1	.87	1.35	170	.58
Douglas-fir, Old-growth	75	18.0	439	110	257	2.6	19.4	.66	1.20	100	.57
Aspen	75	13.5	348	82	204	2.5	10.6	.75	.90	150	.65
Jack pine	75	22.6	532	138	311	5.1	16.2	1.05	1.25	400	.62
Western hemlock	84.7	15.3	339	83	198	1.5	18.9	.75	1.20	100	.60
Douglas-fir Second-growth	84.7	12.8	296	63	173	1.0	22.2	.40	1.13	50	.56
Western redcedar	72.7	19.8	492	124	287	1.5	23.8	.94		210	.65
Douglas-fir, Second-growth	72.7	18.5	462	116	270	3.7	17.2	.94	1.45	220	.59
Sulfate Semichemical Pulps											
Red alder	75				194	0		.40	.70	30	.60
Douglas-fir, Old growth	75				156	0		.47	1.75	30	.50

[1] Based on weight of moisture-free wood.

[2] Ream of 500 sheets, each 25 by 40 inches.

increased with an increase in yield for a given freeness and with a decrease in freeness for a given yield. The process used for semichemical pulping, whether sulfate or neutral sulfite, did not appear to affect the fiberizing.

Strength Properties of Pulps

The pulps and paper products were tested according to TAPPI standards. The strength properties of the pulps were determined on material that had been coarsely fiberized in a small, single-disk refiner and processed in a test beater.

The neutral sulfite pulps made from the Pacific coast woods differed in strength properties among themselves as well as from the Lake States aspen and jackpine (*Table 1*). Although comparisons at the same yield were not possible for all species, red alder gave the weakest of the pulps made of the Pacific coast woods and Western hemlock the strongest. The red alder pulps were especially low in folding endurance. The redcedar pulp had about the same strength properties as the pulp from second growth Douglas fir, and both were stronger than the pulp made from the old growth Douglas fir. The relative strength of these semichemical pulps with respect to species was generally in the same order as found for sulfite and sulfate chemical pulps from the same woods.

In comparison with aspen neutral sulfite semichemical pulp, a pulp considered to have high strength in its class, the red alder neutral sulfite pulp was somewhat lower in bursting strength and much lower in folding endurance but equal in tearing resistance. The semichemical pulp from the old growth Douglas fir was also somewhat lower in bursting strength and folding endurance but much higher in tearing resistance than the aspen pulp. The redcedar and the two Douglas fir neutral sulfite pulps were weaker in bursting strength and folding endurance than the high-strength pulp from the eastern softwood, jackpine, but were equal in tearing resistance. The Western hemlock pulp, however, seemed to be at least equal to the jackpine pulp in strength. Many eastern softwoods, on the other hand, are inferior to jackpine in pulp strength.

The short-fibered red alder sulfate pulps were appreciably lower in strength, especially in tearing resistance, than the long-fibered Douglas fir pulps (*Table 1*).

A comparison of red alder semichemical pulps made in 75% yield by the neutral sulfite and sulfate processes showed that the sulfate pulp was considerably weaker in bursting and tearing strength but somewhat higher in folding endurance than the neutral sulfite pulp. (*Table 1*). At lower yields, the differences were not so great. The sulfate pulp from the old-growth Douglas-fir was also generally weaker than the neutral sulfite pulp made in 75% yield from the same wood, although it had a higher tearing resistance. At lower yields, the sulfate pulp had higher tearing resistance and folding endurance but lower bursting strength than the neutral sulfite pulp. These differences between the sulfate and neutral sulfite semichemical pulps might be expected from the greater softness and flexibility of the sulfate pulps compared to the neutral sulfite pulps.

Neutral sulfite pulp from red alder was bleached by a conventional three-stage process consisting of chlorination, extraction with caustic soda, and bleaching with calcium hypochlorite. A pulp brightness of 83% was obtained with a chlorine consumption of 12.4%, based on the weight of the unbleached pulp (*Table 2*).

As with many eastern hardwoods, the bleached pulp from red alder was higher in bursting strength, much higher in folding strength, and somewhat more dense than the unbleached pulp (*Table 2*). The bleached pulp fell in the strength range of bleached softwood sulfite pulps, except possibly for a low folding endurance.

Single stage bleaching of Douglas fir semichemical pulp with calcium hypochlorite equivalent to 10% of available chlorine increased the brightness of the pulps by 12 to 17 points, but the resultant brightness values were near 40% and were too low for semibleached pulps. The use of 15 and 20% of available chlorine as calcium hypochlorite gave very high increases in brightness, about 30 and 40 points, but the large amounts of bleach might prove uneconomical. The effect of single stage bleaching on pulp strength was not determined.

Relation of Brightness to Available Chlorine Added in Single Stage Hypochlorite Bleaching of Several Sulphate Pulps

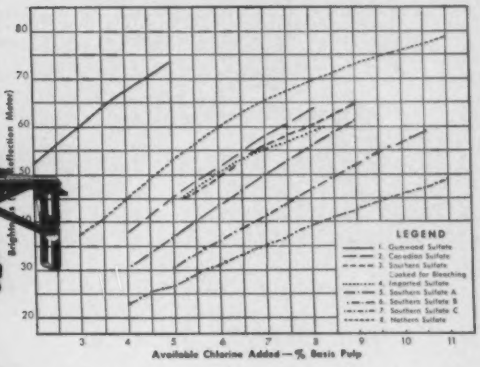

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TABLE 2—STRENGTH PROPERTIES OF BLEACHED SEMICHEMICAL PULPS FROM RED ALDER AND DOUGLAS FIR

Species	Pulp type	Total chlorine for bleaching	Pulp brightness	Pulp yield	Strength properties at 450 cubic centimeters freeness (Canadian-Standard)			Density
					Bursting strength	Tearing resistance	Folding resistance	
		Percent[1]	Percent		Pts. per lb.[2]	Gm. per lb.[2]	Number of double folds	Gm. per cc.
Red alder	Unbleached	.....	.....	64.7	0.73	1.15	40	0.69
Do.	Bleached	12.4	83	53.2	[3] .94	[3] 1.24	[3] 106	[3] .79
Douglas-fir, second-growth	Unbleached	.....	23	50.3	1.17	2.75	1,600	.64
Do.	Bleached	13.9	84	42.0	1.08	2.55	1,700	.67
Do.	Unbleached	.....	23	61.1	.92	2.85	380	.52
Do.	Bleached	19.0	82	50.5	.99	2.80	500	.65

[1] Based on weight of unbleached pulp.

[2] Ream of 500 sheets, each 25 by 40 inches.

[3] 380cc. freeness.

The three-stage bleaching of Douglas fir neutral sulfite pulps produced pulps with brightnesses of 82 to 84% (*Table 2*). The bleaching of the Douglas fir pulp made in 50% yield caused a small decrease in pulp strength similar to that experienced in bleaching chemical pulps. The losses were of the order of 5% and perhaps could be eliminated by a bleaching process especially adapted to this pulp. The bleached pulp from the semichemical pulp made in 61% yield, however, was characteristically higher in strength than the unbleached pulp and was also higher in bursting and tearing strength but lower in folding endurance than its lower yield counterpart (*Table 2*). The bleached, neutral sulfite semichemical pulps from Douglas fir had high tearing resistance and moderately high bursting strength.

The experimental papers and boards were made on the laboratory's 12-inch Fourdrinier paper machine. The paper machine was operated to give corrugating boards with a weight of 26 lbs. and liner boards with a weight of 47 lbs. per 1,000 sq. ft. Single-faced corrugated boards were made on a 52-inch corrugator.

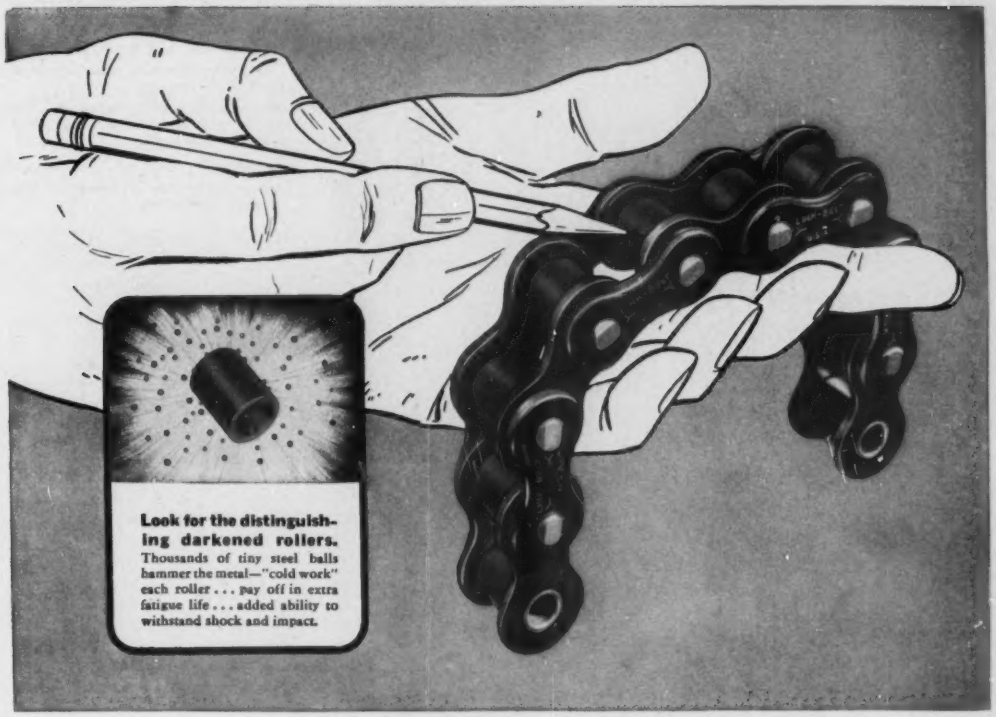
Corrugating boards of outstanding strength and resistance to flat crush (after corrugation) were made from red alder, Western redcedar, and Western hemlock neutral sulfite semichemical pulps (*Table 3*). The boards from Douglas fir neutral sulfite pulps were also high in strength but appreciably lower in flat-crush resistance than the others, though the boards from the second growth Douglas

TABLE 3—PROPERTIES OF CORRUGATING AND LINER BOARDS MADE FROM PACIFIC COAST SEMICHEMICAL PULPS

Wood	Machine run No.	Semi-chemical process	Pulp yield	Pulp freeness at headbox[1]	Properties of boards: Weight	Thickness	Bursting strength: Mullen	Bursting strength: Unit	Tearing resistance	Folding endurance	Flat crush resistance
			Percent	Cc.	Lb. per 1,000 sq. ft.	0.001 inch	Lb. per sq. in.	Pts. per lb.[2]	Gm. per lb.[2]	Number of double folds	Lb. per sq. in.
Corrugating Boards											
Red alder	3443	Neutral sulfite	79.6	520	26.0	7.6	69	0.76	0.96	69	32.0
Douglas-fir, second-growth	3022	...do...	81.5	360	29.8	12.8	56	.52	2.80	190	25.6
Douglas-fir, old-growth	3015	...do...	76.6	480	26.3	9.6	49	.53	1.90	79	16.8
Do.	3087	Sulfate	73.5	360	26.4	9.2	31	.34	1.92	48	14.1
Do.	3090	...do...	56.4	470	25.9	8.3	58	.64	2.78	585	18.4
Western redcedar	3026	Neutral sulfite	72.7	490	25.9	9.1	87	.97	1.37	356	34.6
Western hemlock	3024	...do...	84.7	270	29.6	11.9	71	.69	2.11	181	36.0
Liner Boards											
Red alder	3516	Neutral sulfite	70.6	550	40.5	11.1	104	.69	1.21	199	.....
Douglas-fir, second-growth	2978	...do...	80.3	550	46.4	16.8	81	.50	3.30	370	.....
Do.	2968	...do...	67.1	525	51.3	16.2	109	.60	3.30	914	.....
Douglas-fir, old-growth	3012	...do...	76.6	510	48.3	19.3	91	.54	2.65	118	.....
Do.	3014	...do...	67.2	560	48.0	15.9	105	.62	3.25	357	.....
Do.	3013	...do...	57.4	430	46.6	15.1	121	.73	3.24	681	.....
Do.	3080	Sulfate	63.9	500	47.8	15.6	64	.39	3.16	472	.....
Do.	3066	...do...	56.4	470	47.4	14.3	88	.54	3.52	852	.....
Western redcedar	3029	Neutral sulfite	63.0	660	46.1	14.4	131	.82	1.57	295	.....
Western hemlock	3025	...do...	84.7	280	47.5	16.9	130	.79	2.30	132	.....

[1] Canadian-Standard freeness.

[2] Ream of 500 sheets, each 25 by 40 inches.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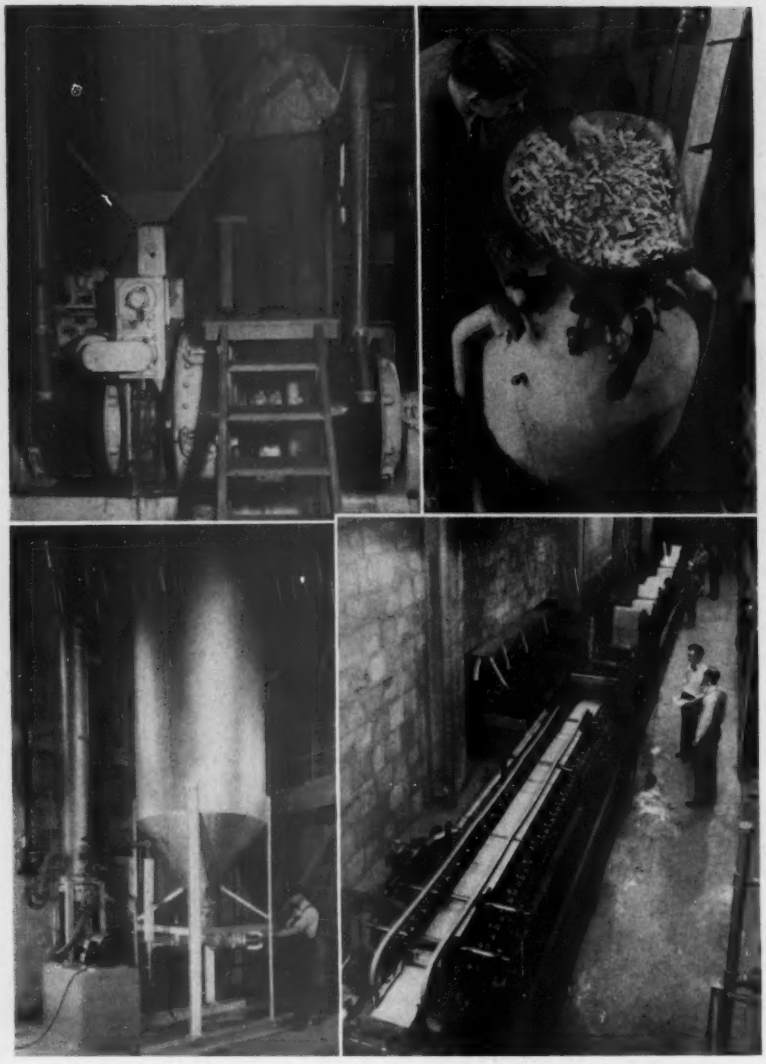

PULP AND PAPER MAKING EQUIPMENT AT MADISON LAB. Photos obtained on visit to the Madison institution by PULP & PAPER. Some of this equipment was used in the development work with Pacific Coast wood and pulp, as described in this article.

Top left—Charging an experimental steel digester at the lab.

Top right—A 36-in. Bauer Bros. Pulped. The larger size discs have been found easier to keep in alignment.

Lower left—View of experimental digester.

Lower right—The papermaking machine which is used at Madison.

fir would be considered quite acceptable.

Of the liner boards made from the different species and by different processes, only the red alder, lowest-yield old growth Douglas fir, Western redcedar, and Western hemlock neutral sulfite boards appeared to qualify as a test liner; that is, they passed the 100-lb. Mullen test on a commercial-weight sheet of 42 lbs. per 1,000 sq. ft. The boards made from the Douglas fir and hemlock pulps were exceptionally high in tearing strength. The red alder and redcedar boards, on the other hand, were fairly low in this respect, as were the pulps from these woods. The boards made from red alder pulp and from the high yield neutral sulfite pulps of Douglas fir and hemlock were, like the pulps, low in folding endurance. Folding endurance and bursting strength of these boards increased with decreasing yield, also as with the pulps.

The corrugating and liner boards made from sulfate semichemical pulp of old-growth Douglas fir were of fair quality. The corrugating board made from the lower yield Douglas fir had excellent strength properties but low flat-crush resistance. The sulfate semichemical liner boards were lower in bursting strength and equal in tearing resistance and folding endurance when compared with neutral sulfite boards from pulps of the same yield.

The strength of some of the paperboards was undoubtedly aided by processing imposed during the fiberizing, which resulted in rather low freeness at the paper machine.

The most promising semichemical pulps from the Pacific coast woods for use in liner boards and other paperboards appear to be those made from (a) a mixture of red alder and Douglas fir neutral sulfite pulps made in a yield of about 70% from either the mixed woods or pulps and (b) a mixture of the Douglas fir sulfate semichemical pulp made in a yield of about 60% with a softwood sulfate pulp of high bursting strength and, possibly, low tearing resistance.

Clean, 30-lb. greaseproof paper having excellent formation and satisfactory greaseproof qualities for packaging purposes was made from red alder bleached semichemical pulp. This paper had strength properties equaling or exceeding those of commercial softwood sulfite papers of this type. It is probable from the nature and properties of the red alder bleached semichemical pulp that it could find successful use in bond and book papers, much as pulps of eastern hardwoods are used.

Bleached semichemical pulp made from Douglas-fir was used in lithograph-type papers made at the National Bureau of Standards.[1] It was reported that strong papers characterized by high tearing strength were produced, although their expansivity was up to the allowable maximum. Softwood semichemical papers, in general, were not entirely satisfactory because of tendencies toward hardness, high expansivity, and curl. Softwood bleached semichemical pulps, although probably not too attractive from an economic standpoint, might find valuable use in bleached grades requiring high strength, particularly high tearing resistance.

[1] Scribner, B. W., Shaw, M. B., O'Leary, M. J., and Missimer, J. K. Resin Bonding of Hardwood Fibers in Offset Papers. Journal of Research, U. S. National Bureau of Standards, Vol. 45, No. 3. 1950.

Ceilings Drive Out Small Wood Producers

Adjustments to ceiling prices established for pulpwood in Minnesota, Wisconsin and Michigan have been requested by 40 pulpwood producers, dealers and stumpage owners who said many producers could not operate profitably at current prices.

Their position was presented at a public meeting called by the Office of Price Stabilization. Representatives of the industry said many small producers were going out of production and others who had commitments for stumpage and machinery were suffering losses.

Ivan D. Wright, Ironwood, Mich., attorney and representative of the Northern Wisconsin-Michigan Lumber Producers Association, said the situation would correct itself if pulpwood was decontrolled. If that were not possible, he suggested that prices be fixed at levels offered by mills when contracts for the season were made in the fall. He also asked suitable allowances for cost of delivery by trucks on long hauls.

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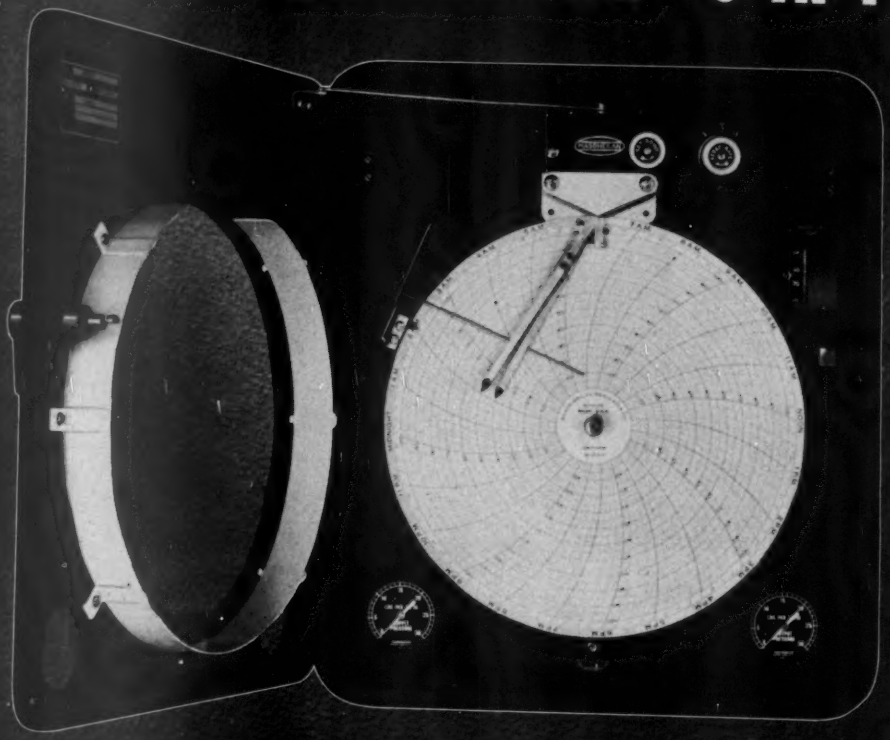

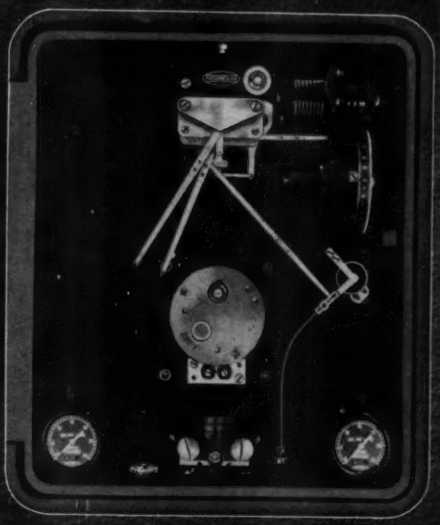

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All types of control plus pneumatic set, time cycle and differential supplementary functions are now available in recording or indicating controllers for pressure, temperature, liquid level or flow service. Also recorders and manual control subpanel.

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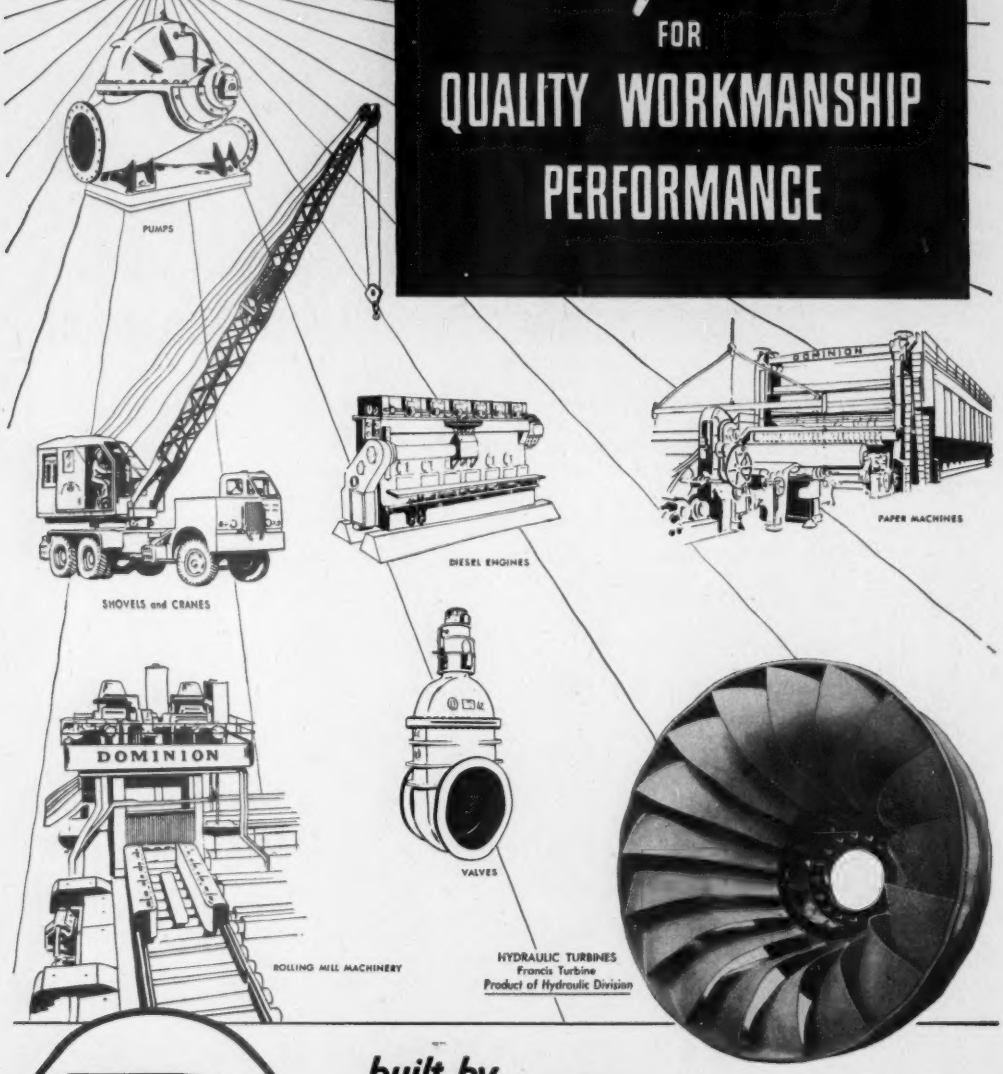

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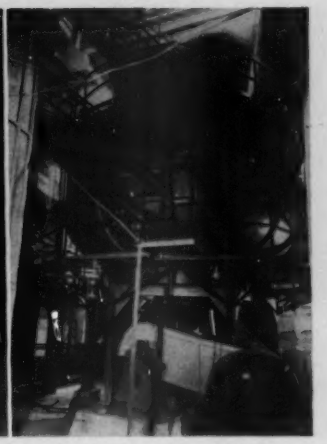
KALAMAZOO'S DE-INK PLANT

A COMPACT SYSTEM, REMOTE-CONTROLLED

VIEW IN KALAMAZOO PAPER CO.'s De-Ink plant shows traveling conveyor delivering selected waste paper to Hydrapulper. Hot water tank on right.

HERE IS CLOSEUP OF SAME CONTROL PANEL shown in picture at left. Shartle Bros. designed main indicating and recording panel for entire operation.



BATCH COOKER TYPE HR HYDRAPULPER, 18 ft. diameter, equipped with steam manifold and nozzles and conveyor-hopper combination for charging.

Still a matter of slight amazement to the paper industry is how the city of Kalamazoo, Michigan, became one of the greatest centers in the world of papermaking.

There are seven mills operating 28 machines, making over 3,000,000 pounds of paper and board every day in the city, and at least as many more mills within short distances of it.

The answer for most of them—and most old-timers will verify this—is one of people and personalities, not of resources or natural advantages. There was no wood to speak of; no power nor important water supply, or any of the other things that usually are magnets for paper industries. It was simply a case—in most of these cases, anyway—of men who liked or wanted to make paper, just settling down in Kalamazoo. For instance, the Milhams and Bryants, Kindlebergers, Kings, Curteniuses, etc. Of course, they were close to a great paper market in Chicago, particularly for printing papers.

Oldest of these mills is Kalamazoo Paper Co., built in 1867, which has grown from about 6 tons a day to 225 or more, and 100 tons a day coating operation. It employs 850. It was started because Kalamazoo Editor Volney Hascall boosted it, brought in a New England promoter named Lyons, a Dutch mill builder named Joek, and had support of Kalamazoo business men led by Samuel Gibson. Today its officers are A. E. Curtenius, chairman; G. T. Jubb, president and general manager; B. H. Cooper, v. p. and director of purchasing; J. A. Wise, v. p. in charge of production, and F. B. Curtenius, secretary-treasurer.

An Old Mill—But With New Ideas

Though it is the oldest of Kalamazoo's

SHARTLE 16 in. 3-way motorized rotary distribution Hope valve—there are two on line from Hydrapulper to cook chest. Also three on line from cook to storage chests.

THREE NO. 20 Shartle Class L Agitators on cook chests at Kalamazoo Paper Co. Pump in foreground is 12 in. unit for transfer of cook chest stock to storage chests.

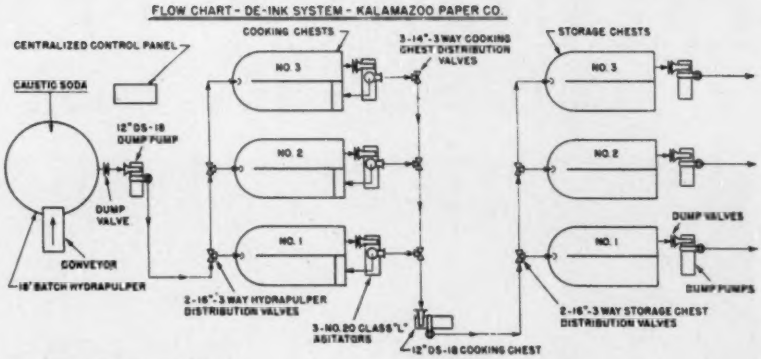
PNEUMATICALLY OPERATED HYDRAPULPER dump valve at Kalamazoo, with a Shartle 12 in. Class DS high density dump pump, to deliver slush stock to the cook chest.

mills, as the foregoing related, Kalamazoo Paper Co. is a mill with new ideas. The pictures on this page are the evidence.

They illustrate a new Shartle Brothers de-ink system for sorted waste papers. The process involves slushing, cooking, screening, washing, bleaching and re-washing of fibers.

While one batch is being slushed in the 18 ft. Hydrapulper, the next charge can be loaded onto the conveyor-hopper combination, speeding up the process. Slush stock leaves by pneumatically operated sump valve and is pumped to three cook chests. Here Shartle agitators keep the fibers in suspension. Stock is then pumped to storage; then screened, washed, bleached and re-washed before being sent to the stock preparation system.

The de-ink system is compact, with a minimum of piping. It is entirely automatic, the panel board for operating from stock conveyor to storage, being shown in these pictures.



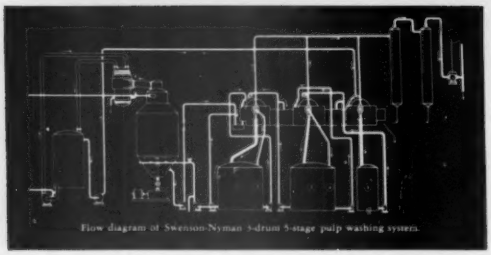
Achema X Exhibits

Within six weeks of announcement of plans for the ACHEMA X international exhibition of chemical apparatuses, which is to be held at Frankfurt on Main, Germany, May 18 to 25, 1952, 311 leading German and foreign firms have reserved exhibiting space in five large halls. Since another 150 German and foreign firms are expected to participate, two more exhibition halls have been included.

Stock Plan For I.P.

An incentive stock plan for key employes will be presented to stockholders of International Paper Co. at the annual meeting in May. The plan proposes to offer key employes option to buy a total of 250,000 shares of presently authorized but unissued common stock, with not more than 20,000 shares to be optioned to any one individual. Details of the plan have been mailed to the 30,000 stockholders.

PULP IS WASHED CLEANER with Swenson-Nyman Equipment


Flow diagram of Swenson-Nyman 5-drum 5-stage pulp washing system.

REDUCES DILUTION through multistage operation

CUTS STEAM COSTS by reducing evaporator loads

ELIMINATES SEWER LOSS because it operates as a closed system

REDUCES SALT CAKE LOSS to the small amount (20 to 50 lb per ton) passing through with pulp

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Based on a roll speed of 157 rpm the total face of the roll bars and three bed plates adds up to a wet beating factor of over 44,000,000 square inches per minute. That means a hydrating surface of from 4 to 8 times that of any other beater or refiner on the market.

The stock is rubbed or brushed over a total hydrating surface 78" long—not once, as in most other equipment, but at least 8 times before being discharged. Beating cycle 1 to 3 minutes only.

Obviously the production rate will vary with the fiber characteristics, freeness drop desired and tonnage required for the paper machine. On Kraft and other hard stocks an output of from 50 to 100 tons can be expected. On soda pulp or sulphite the rate should run considerably higher.

If you want continuous operation, development of the maximum mullen, tensile and tear characteristics of the stock plus high production, a Midwest-Smith will give it to you.

Midwest-Smiths can be arranged in tandem or series where, in larger mills, more than one is required.

Power—a 350 hp motor will suffice. Tackle maintenance very low because there is no bar to bar contact.

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THE SUMNER IRON WORKS is the pioneer in the design and construction of Hydraulic Slab Barkers. SUMNER engineers have continuously studied jet pressures, hydraulics of high pressure nozzles, rate of feed and other highly-important component operations of this equipment.

This new barker is the result of joint collaboration between the Canadian Sumner Iron Works, Limited, Mr. Frank Swift of Crown Zellerbach Corporation, and Mr. Angus Stewart of International Pulpwood Supply.

The results have been incorporated into the SUMNER Oscillating type Hydraulic Slab Barker to give better operation with less water consumption, thereby substantially lowering both installation and operating costs.

The unique oscillating nozzle using a relatively high water concentration enables the toughest barks to be removed with a lower overall water usage.

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Wherever there's pulpwood to be handled, you can get there on rubber-tire Lorains in a hurry. Around the yard or dock you'll gain minutes every trip — and extra loads every day — when you roll on rubber to the spot. Lorain Self-Propelled Cranes are one-man operated, travel speeds up to 7 m.p.h., capacities from 10-tons up. (30 m.p.h. 2-engine Lorain Moto-Cranes also available for unlimited high-speed mobility.)

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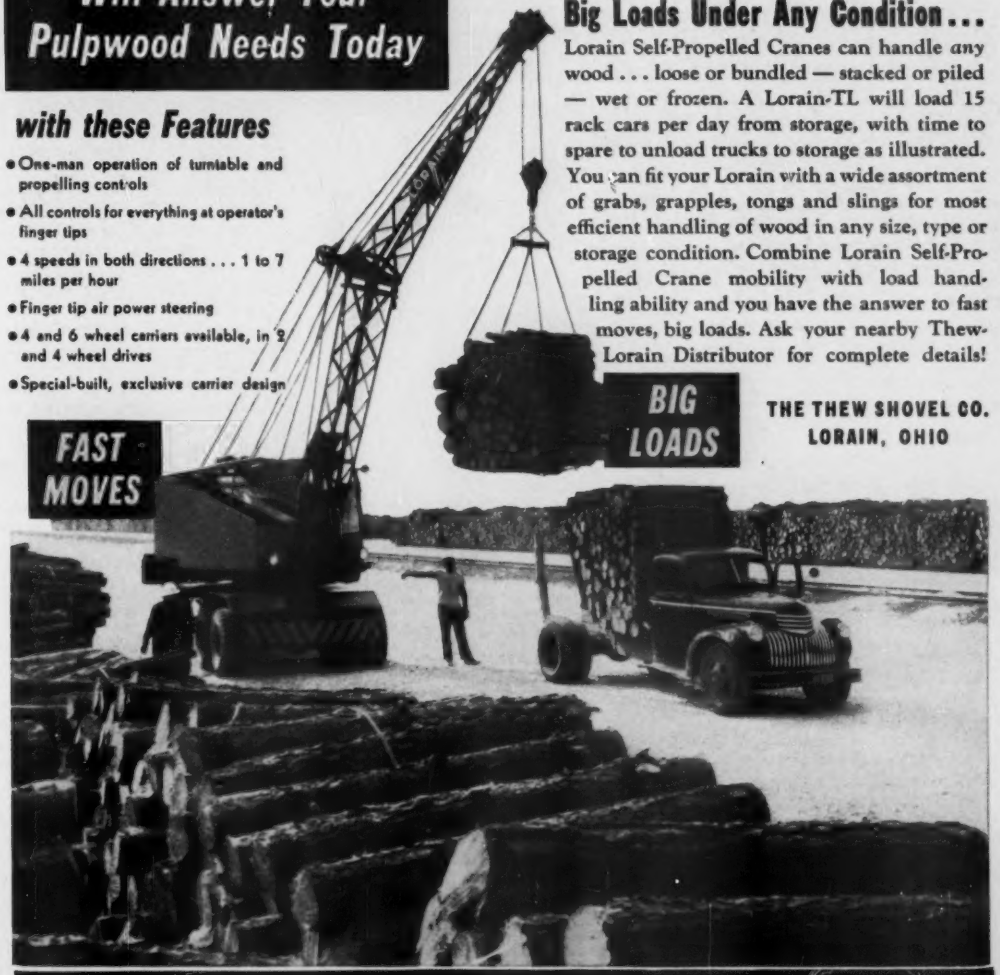

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"Through research in the next 10 years, more money is to be MADE or SAVED in pulpwood operations of North America than has been made or saved in pulp and paper manufacture in the last 25 years."—*Dr. LINCOLN R. THIESMEYER, President of Pulp & Paper Research Institute, Montreal.*

MAINE EXPERIMENTAL FOREST

Paper Companies In Cooperative Study

A sound basis for long-range experimental work in the spruce-fir region of Maine has already been established in the Penobscot Experimental Forest—a 3800-acre holding, near Bangor, which is being operated by the Northeastern Forest Experiment Station of the U. S. Forest Service. The first step in the work has been the establishment of "cutting practice level" plots to carry out exploratory tests of methods of cutting under controlled conditions.

The forest came into being as the result of cooperative sponsorship by nine pulp and paper companies with timberland holdings in Maine who bought the tract and turned it over to the government in 1950 for experimental purposes. The forest was formally dedicated in ceremonies at the University of Maine last year.

The nine cooperating companies are: Great Northern Paper Co.; Hollingsworth & Whitney; Oxford Paper Co.; Eastern Corp.; S. D. Warren; Penobscot Chemical Fibre; International; St. Regis, and Dead River Co.

Eugene H. Clapp, president of Penobscot Chemical Fibre Co., has termed the forest "the first instance in the annals of American forestry that a group of wood-using industries have united to purchase a timberland tract for lease to the government to do such work."

The 3800-acre tract has been leased to the Forest Service for a 99-year period, with the Northeastern Forest Experiment Station administering the tract through its research center at Bangor, and carrying all responsibility for the experimental work. The University of Maine, the Extension Service, the Maine Agricultural Experiment Station and other interested agencies are expected to cooperate.

Work in Progress

Work has been initiated by T. F. McLintock, research forester in charge of Penobscot Research Center at Bangor. An immediate and important objective is to determine, as precisely as possible, what types of forest management are economically practical for varying conditions in the spruce-fir-hardwood region of Maine.

Mr. McLintock points out that Maine's

T. F. McLINTOCK, Research Forester, N. E. Forest Service. He is in charge of Penobscot Research Center, Bangor, Me.

timber cover a wide range of ownerships differing in size, location, accessibility and composition. The studies will attempt to determine the type of forestry best suited to each of these variables, and the relative economic merits of single and multiple product harvests.

The first step has been to establish "cutting practice level" plots on which a small exploratory test was carried out. Forty adjoining acres near the center of the forest (see map) have been divided into four 10-acre plots and cuttings have already been made on the four determined levels of management—"high order"; "good"; "fair"; and "poor." The study area is fairly homogeneous with respect to composition and volume, with at least 10 cords (gross volume) of spruce, fir and hemlock per acre. The primary objective of this initial study has been to provide on-the-ground contrast of varying cutting practice levels. At poor and fair levels, the product objective will be pulpwood only. At good and high order levels it will be pulpwood plus sawtimber and other products.

Following setting up of this trial study, a larger scale "pilot operation" experiment has been started. This will be a long-range, closely controlled study in which variations of the four levels will be placed under intensive test. Standards for cutting at the different levels which will be put into effect call for cutting cycles somewhat as follows:

Levels	*Years*
High Order	from 5 to 10
Good	from 10 to 20
Fair	from 20 to 40
Poor	from 40 to 80

The four levels of management have been described by the Northeastern Station as follows:

Poor cutting is characterized by a harvest cutting that leaves the land with a limited means for natural reproduction of desirable species. It leaves scattered unmerchantable seed trees of low quality on broad areas from which merchantable timber has been removed. In second-growth forests, poor cutting robs the stand of minimum-size merchantable trees. Given time, and fire protection, a new stand usually develops with about 40% stocking of merchantable species; if less than 40%, it falls in the next lower class (destructive). This does not meet any acceptable standard.

Fair cutting is characterized by the beginning of measures that will maintain a reasonable stock of growing timber in species desirable and marketable. This level *approximates* the so-called *minimum* cutting-practice guides. It is usually too low, however, to maintain adequate cover and conditions for soil and water conservation where watershed values are important.

Good cutting is in accordance with good silviculture. It leaves the land in possession of desirable species for vigorous or high-quality growth in the immediate future. It is substantially better than fair cutting and contains elements of the high-order class. This is the lowest acceptable level where watershed protection is important.

High-order cutting is characterized by the best methods to build up and maintain quality and quantity yields consistent with full productive capacity of the land. It includes intensive cultural measures of an investment nature where needed. It is most applicable to the best growing sites favorably located with respect to roads, easy logging, and good markets. It comes the closest to being consistent with good watershed management and other forest benefits.

A Commercial Test

The first objective of this study will be to test the technical soundness of silvicultural techniques when applied on a commercial scale. Complete records will be kept of the cutting rules employed and detailed stand descriptions before and after cutting. Changes in composition, density, size class distribution, quality and

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SECTION OF "HIGH ORDER" CUTTING PLOT in Penobscot Experimental Forest. At right is dense group of young spruce and fir which will be thinned later and will be part of future crop; large tree in center foreground is red spruce left for further growth, while tree just behind it is cull hemlock which has been girdled to kill it and make room for other trees. Tree to extreme left is 10-inch hemlock left for further growth. Cutting in this manner makes it possible to repeat cutting in 5 years for mature, merchantable timber.

stand condition will be closely watched.

The second, equally important, objective will be securing of data on costs and returns of operations at the different cutting levels. All costs of production will be carefully analyzed and balanced against the returns in terms not only of cash value of the wood removed, but also of growth and development of the residual stands.

The opportunity will be afforded forest owners to examine the nature and effects of well-defined cutting policies and decide upon the proper practices for their own holdings.

Management of the forest will be aimed at increasing primary merchantable species and reducing others. Primary merchantable are red spruce, black spruce, white spruce, hemlock, balsam fir, pine and white birch. Secondary are cedar, red maple, poplar, larch, other species.

Rules for Cutting

Each of the cutting practice levels embraces these cutting rules:

Poor Cutting:

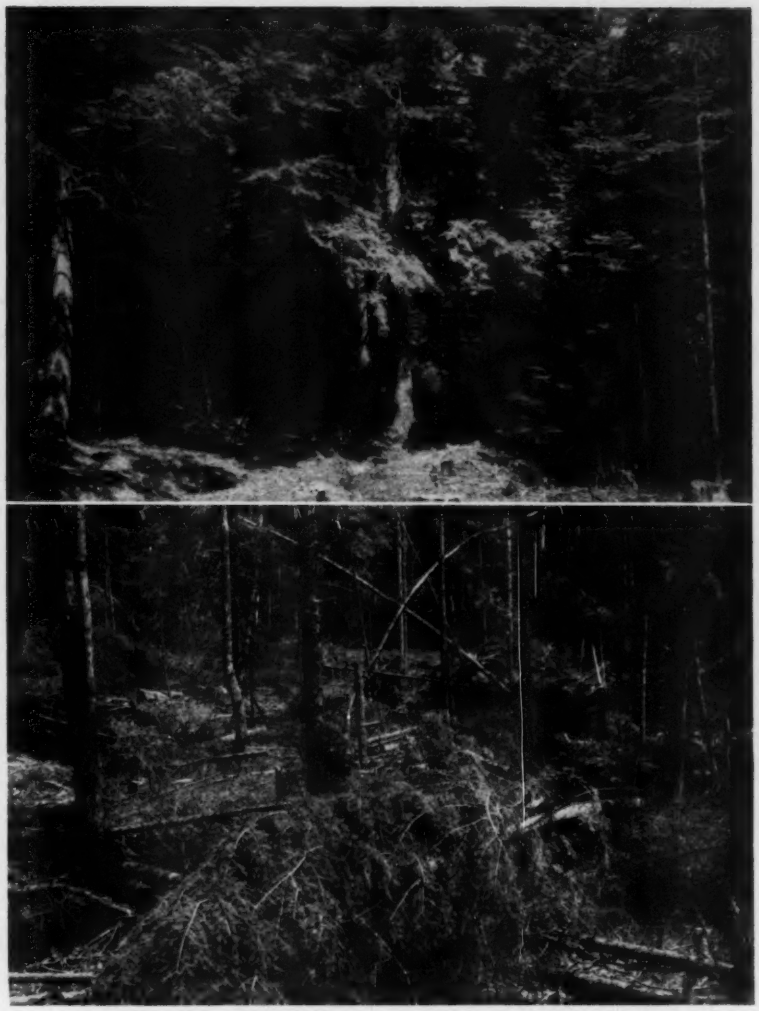
1. All merchantable trees will be cut.
2. Stump-cutting method may be used.
3. Stand will be cut again when operable and variable cutting cycle of from 45 to 80 years is anticipated.
4. No cultural measures of any kind will be applied.

Fair Cutting:

1. All merchantable fir and red maple will be cut.
2. Spruce and hemlock will be cut down to and including 10-inch class.
3. White pine will be cut down to and including 11-inch class.
4. White birch will be cut down to and including 8-inch class.
5. Stump-cutting not permitted; all trees must be yarded.
6. Stand will be cut again when operable under same rules. Variable cutting cycle of from 30 to 40 years is anticipated.
7. No special effort will be made to protect residual stand from logging damage except that general instructions will be issued to cutters to be careful of the young trees.
8. Cultural measures will be applied only to prevent undue deterioration.

Good Cutting:

1. All trees to be cut will be marked.
2. Stump-cutting not permitted; all trees must be yarded.
3. Cutting cycle will be 15 years.
4. Volume to be removed in combined harvest and improvement cuts will not exceed following limits:
   - A. *In the initial cut*
     1. If the original gross volume is 1,000 cu. ft. per acre or less (in trees 4.6 inches d.b.h. and larger) *no more* than one-third the original volume will be removed.
     2. If the original gross volume is over 1,000 cu. ft. per acre, *no more* than 45% of the original volume will be removed.
   - B. *In subsequent cuts*
     1. If growing stock is below optimum level, *not more* than 75% of periodic growth will be removed.
     2. When optimum stand structure has been attained, 100% of periodic growth may be removed.



UNDER "POOR" PRACTICE, trees left are subject to loss. Five-inch spruce in center foreground is a victim of wind. Following heavy cutting there was no protection from high winds that are common in this part of Maine.

5. *Within the limits just prescribed* the following cutting rules will serve as a guide in determining the pattern of the cut. Exact marking rules for a given stand will vary with volume and composition and will be based to a large extent upon the judgment of the marker. Insofar as silviculturally desirable and economically feasible, provision will also be made for volume to be removed in improvement cut (see below).
   - A. All merchantable trees that will not increase in value within subsequent 15-year period will be cut.
   - B. Flexible diameter limits will be observed for all other trees. Below the limits indicated for each species no tree will be cut except as in "A" above. Trees above those limits will be left only when, in judgment of the marker, it is silviculturally or economically desirable to do so: *Fir*—7.5 in.; *Pine* and *hemlock*—11.5 in.; *Spruce*—13.5 in.; *White birch*—9.5 in.; *Other merchantable species*—7.5 in.
6. Cultural measures of investment nature will be applied within following limits, and only at time of each harvest.
   - A. Cull trees will be girdled or poisoned to liberate desirable pole sized trees.
   - B. Wolf trees will be girdled or poisoned.
   - C. Thinnings will be made in softwood pole stands where needed, and will favor spruce, hemlock and fir in that order.
   - D. Up to 30 pruned crop trees per acre of spruce and/or pine will be maintained but in no case will any tree be pruned after it attains a d.b.h. of 8.5 inches.
   - E. If more than 20% of area is occupied by non-restocking "holes" at end of second cutting, cycle spot planting will be made to reinforce the stand where needed.
7. Logging damage to residual stand and to site will be prevented by supervision.

High-order Cutting:

1. All trees to be cut will be marked.
2. Stump-cutting not permitted; all trees must be yarded.
3. Cutting cycle will be five years.
4. Volume to be removed in combined harvest and improvement cuts limited by following considerations:
   - A. *In initial cut, not more* than 35% of original gross volume will be removed.
     1. All merchantable trees that will not increase in value within next five years will be removed, except where incompatible with good silviculture.
     2. No other sound trees of desirable species will be removed except for thinning.
     3. Improvement cuts will be made where needed, as defined below.

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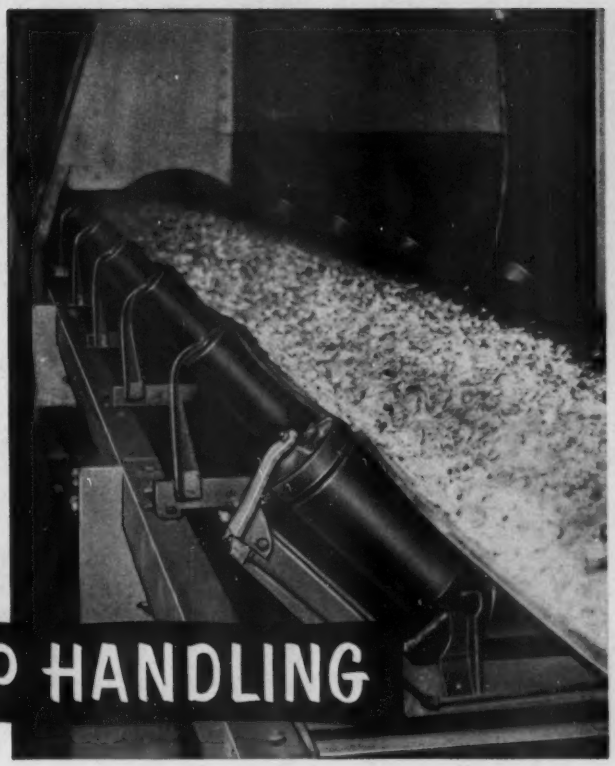
for example:



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Standard Troughed Belt Idler

Note the much greater capacity made possible by the 45° angle of concentrating rolls on Rex Wood Chip Idler.

Rex Wood Chip Idler

All the way from pulp wood to paper, Rex can help you cut your handling costs. Take the Rex Wood Chip Belt Conveyor, for example. Rex Wood Chip Idlers are specially designed to meet the needs of the pulp and paper industry. The 45° slope of the concentrating rolls permits the loading of chips very close to the belt edge and piling them higher on the belt without danger of spillage. The capacity of the belt is thus greatly increased, and the cost per ton of chips handled is correspondingly reduced.

Rex Wood Chip Idlers are of the same high quality as standard Rex Idlers. You get the same long life, the same freedom from costly breakdowns, the same low maintenance costs.

You'll find it well worth while to ask your Rex man to review your entire wood chip handling setup. He's familiar with your problems, and he's an expert in chains, conveyors, idlers and elevators. Chances are he can help you cut costs, increase efficiency and get extra capacity, not only in your wood chip handling, but all through the mill.

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4. Sound trees of less desirable species may be cut, especially where they interfere with growth of more desirable species.

B. *In subsequent cuts, not more* than 50% of periodic growth will be removed until the optimum stand structure has been attained, at which time 100 percent of the periodic growth may be removed.

1. Poor risk and cull trees remaining from previous cuts will be removed and other improvement cuts will be made where needed, as defined below.
2. Remainder of cut will be made up of trees likely to show the least increase in value between cutting cycles, primary consideration being given to removing the most mature trees.
3. Above rules are designed to grow best species to substantially larger diameters than under "Good" cutting.

5. Cultural measures of investment nature will be applied where desirable every five years as follows:

A. All wolf trees, and cull trees interfering with the growth of desirable trees, will be girdled or poisoned.

B. Thinnings will be made where needed and will favor spruce, hemlock and fir, in that order.

C. Weedings will be made where needed.

D. Up to 75 pruned crop trees per acre of spruce and/or pine will be maintained. An effort will be made to insure that the pruned trees are well distributed through the range of diameter classes by pruning no more than 10 trees at each cutting cycle, but in no case will any tree be pruned after it attains a d.b.h. of 8.5 inches.

E. If more than 20% of area is occupied by non-restocking "holes" at end of second cutting, cycle spot planting will be made to reinforce the stand where needed.

6. Logging damage to residual stand and to site will be prevented by supervision of the operation.

C. *Logging Operation.* Well in advance of the start of the operation a logging plan will be drawn up and arrangements made for sale of products.

D. *Re-cruise.* Soon after completion of logging a re-cruise will be made. All plots will be remeasured every five years. Volume growth and changes in stand structure will be computed and described after each remeasurement. Costs of various phases, including logging and improvement cuts, will be tabulated, and a brief analytical report will be made, together with suggestions for the future.

SECTION OF "GOOD" CUTTING PRACTICE AREA where one cutting has been made with next due in 15 years. ART HART of Northeastern Forest Experiment Station, stands by red spruce which has been pruned so clear wood will be produced. This is part of pruning study designed to determine costs and returns of such treatment.

"FAIR" CUTTING PRACTICE AREA (right) in which all balsam fir 6 inches in diameter and up, and all spruce and hemlock 10 inches and up have been cut. No selection has been exercised in cutting except that usable trees to a certain dimension are taken. There is no stand improvement and no further cutting will be possible before 30 or 40 years.

Summary

It is much too early, of course, to say anything about what the work done so far has shown. There is every reason to think it should return rewards on the basis on which the Penobscot Experimental Forest has been founded. It is a project established on a large enough scale, and to extend over a long enough period of time, to permit true scientific investigation.

EVEN CANADA MUST FIND WOOD

By Gordon Godwin

Assistant General Woodlands Manager, Ontario Paper Co.*

Canada's pulp and paper companies must find more usable species of wood if demands of the expanding industry are to be met.

We are using more and more species of wood every day, but we still have a long way to go. The days of using only spruce have disappeared. Today, companies are using poplar and hardwood trees in large volume.

Generally speaking, the industry is becoming more conscious of the importance of conservation and long-term planning. Companies no longer cut a clear path through one area and then move on to another. Today we do selective cutting, always trying to reforest areas that have been cut as we go along.

GORDON GODWIN, Asst. Gen. Woodlands Mgr., Ontario Paper Co., who ended term as Chairman of Woodlands Section of CPPA.

There are still large, undeveloped areas throughout Canada embracing extensive pulpwood resources, but in many cases their location is so isolated that companies prefer to utilize other species rather than go to the expense of opening up new areas in isolated locations.

Costs of raw materials in newsprint production have trebled since 1938. In the last year alone, the cost of raw materials to make a ton of newsprint rose two dollars and we expect another increase of two dollars this year. And that is only one item. Another is labor, and apart from rising wages efficient labor is becoming harder and harder to obtain.

Progressive companies are seeking maximum utilization of their raw material, and surprising things have been done along that line in recent years. They are doing their best to see that the resource on which their prosperity depends is self-sustaining. Our own company is carrying out an interesting development on Manitoulin Island in Georgian Bay, where in 1947 we bought 75,000 acres with little timber on it because it was a growing site and we wanted to bring it back to a valuable timber producing area. We are planting 300,000 trees a year in that area and we are hopeful of having it in production by 1975.

Our company was one of the first to use poplar extensively in pulpwood production. It is growing hybrid poplars in co-operation with the Ontario department of lands and forests to try and find the best species suitable for pulping.

We hope to come up with a hybrid

patent pending

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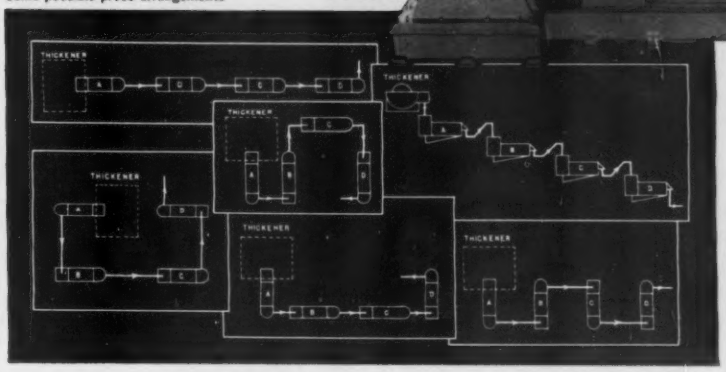
A 300-ton Pressure Washing System requires less than 200 g.p.m. of wash water. This not only makes it desirable if your mill has a limited water supply, but also results in greatly reduced stream pollution. Further, since the water temperatures exceed 200°F. excellent blow-heat recovery is possible. Space is no problem, either, for the units are compact and can be installed with a minimum of building alterations (see diagram). Finally because filtrate volumes are small, large pumps and pipelines are unnecessary. Thus considerable power saving is effected, a typical 300-ton, 3-stage system consuming a total of only 1.36 horsepower-days per air-dry ton.

Get the facts on Pressure Washing today . . . we think you'll see how its unique advantages can improve the operation of your mill . . . and reduce your costs.

Sutherland Press Unit

Some possible press arrangements



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poplar, just as hybrid corn, that will grow much faster than the species of wood that is now customarily being used in eastern Canadian mills.

**Based on an interview during recent annual meeting of the Woodlands Section, Canadian Pulp and Paper Association, of which Mr. Godwin was chairman in 1951-52.*

Review of Woodlands Discussions in Canada

J. B. Matthews, Toronto, chief forester of Abitibi Power & Paper Co., is the new chairman of the Woodlands Section, Canadian Pulp & Paper Association, succeeding Gordon Godwin, assistant general woodlands manager, Ontario Paper Co. J. H. Merrill, woods manager of Anglo-Canadian Pulp & Paper Mills, Quebec City, is vice-chairman.

Councillors are R. S. Armitage, Quebec; G. H. Fisk, Montreal; Gordon Godwin; F. A. Harrison, Montreal; H. P. Klinestiver, Fort Arthur; R. G. MacFarlane, Edmundston, N.B.; G. W. Phipps, Kapuskasing, Ont.; W. B. Southon, Port Arthur; L. L. Wetmore, Three Rivers; W. F. McColm, Quebec. C. R. Mills, Toronto, and Edgar Porter, Quebec, are ex-officio members. W. A. E. Pepler is manager.

Woods managers and foresters of several of the larger eastern Canadian companies dealt with current problems of the industry. Francois Matte, chief forester, Donnacona Paper Co., outlined selective cutting in a pulpwood forest tract of 757 square miles in Quebec's Laurentide Park. To implement a selective cutting plan he said, camps, dams and year-round roads for logging trucks had to be built.

M. R. Wilson, resident manager, Canadian International Paper Co. tree farm at Grenville, Que., explained his company's co-operation with farmers in management of wood lots.

In his annual report Mr. Godwin emphasized that the industry should prepare for substantial expenditures on applying present silvicultural knowledge and on getting results from fundamental research.

H. J. Dawson, commissary supervisor for Quebec North Shire Paper Co., reported that the industry is spending some $12,000,000 on food for its forest workers, which made it important that cooks be properly trained so they could make the most of supplies.

Water Bombing of Fires

Water bombing of forest fires in eastern Canadian woods has proved effective, according to Q. F. Hess, district forester for the Ontario department of lands and forests. He told of tests with specially made paper bags, holding 3½ gallons of water, dropped from aircraft at a height of 300 feet. On hitting the ground, they not only wet the area but add water vapor to the air, thus retarding the advance of fire. In many forested areas, he said, it is difficult to get fire fighting crews to the fire, and it may develop into a large one with heavy loss before the men can reach it. If the rate of spread can be checked until the men arrive, a big saving can be effected. Water bombing is proving one of the most effective ways of accomplishing this, said Mr. Hess, who added that Ontario used 40 planes in forest protective work.

J. B. MATTHEWS (left), Chief Forester, Abitibi Power & Paper Co., Toronto, was recently elected chairman of the Woodlands Section, CPPA, in Montreal. Born in Ontario, he joined Provincial Paper Co., subsidiary of Abitibi, after serving in the Ontario Forest Service. W. A. E. PEPLER (right), who continues as Manager of the Woodlands Section of CPPA, which held its annual meeting recently.

The improving lot of the eastern Canadian woods worker was described by A. F. Buell, woodlands manager of Long-Lac Pulp & Paper Co., Terrace Bay, Ont. "Mechanization is needed to attract the labor force as well as cut down costs in time," declared Mr. Buell. "Sixteen years ago 90 percent of all hauling was done by horses in eastern Canadian woods. Today 95 percent is done by truck."

Ehrhart Heads APA

E. O. Ehrhart, Armstrong Forest Co., Johnsonburg, Pa. recently was elected president of the American Pulpwood Assn. Other officers elected with Ehrhart include: vice-president—W. J. Damtoft, Champion Paper & Fibre Co., Canton, N.C., and L. J. Freedman, Penobscot Chemical Fibre Co., Great Works, Me.; executive secretary-treasurer—H. E. Brinkerhoff; and assistant treasurer—Helen L. Kohler.

CHAIN BELT CO. CHANGE

W. J. SPARLING (left), has been named to new position of Vice Pres. and Mgr. of Milwaukee Operations of Chain Belt Co., of Milwaukee. M. G. JEWETT (right), has been appointed manager, Chain & Power Transmission Division of Chain Belt and will also headquarter in Milwaukee. Announcements were by President J. C. Merwin.

VULCAN FORM FOUR DIVISIONS

NEW ENGINEERS WITH VULCAN

THE VULCAN COPPER & SUPPLY CO., of Cincinnati, engineers and builders of chemical processing plants—it has built sulfur recovery and alcohol and other plants for this industry—has engaged this trio (l to r): MERLE L. GOULD, Chief Development Engineer. He came from Shell Development Co. in California. GEORGE F. KLINE, Project Engineer in Process Engineering Dept., recently with AEC at Oak Ridge, Tenn. F. CORSON CUNNINGHAM, Process Engineer for chemical plants. He has completed work for Ph. D. at Yale.

Beginning its 51st year, The Vulcan Copper & Supply Co., Cincinnati, through President T. O. Wentworth, announces organization of operations into four independently functioning divisions:

Vulcan Engineering Division headed by V. D. Drummond carries on established services to chemical and process industries, offering expanded facilities for technical and economic surveys, process development, process, plant and equipment design and procurement, over-all construction and initial operation.

Vulcan Manufacturing Division, under P. W. Wentworth, manager, continues its long record in engineering and fabricating of distillation, evaporation and extraction equipment, provides engineering and design counsel and process equipment of ferrous and non-ferrous metals and alloys.

Vulcan Construction Division, temporarily managed by Thomas Carroll, vice president, performs contracts for complete erection of chemical plants from the ground up, and installation of equipment.

Vulcan Industrial Supply Division distributes tools, factory supplies, copper, brass, and alloy products in Southern Ohio and Northern Kentucky. E. E. Wentworth is manager.

The company also announced three appointments to key positions: Merle L. Gould as chief development engineer, George F. Kline as project engineer, and F. Corson Cunningham as process engineer.

Mr. Gould, graduate of the University of Nebraska and for the past nine years with Shell Development Co. at Emmeryville, Calif., is heading up development in Vulcan Engineering Division.

Mr. Kline has been with several companies in the chemical industry and with the Atomic Energy Commission, Oak Ridge, Tenn. He received his A.B. at Cooper Union College and master's at New York. He is a group leader in the Process Engineering Department.

Mr. Cunningham has completed work for a Ph. D. from Yale and is carrying out chemical plant design assignments as a member of the Process Engineering Department. He studied at Princeton, too, and was with Chemical Construction Corp. in New York.

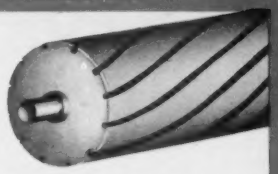
these

Clark-Aiken "Firsts" Slash Sheeting Costs . . .

Clark-Aiken engineers went "all-out" in designing the new, complete line of Clark-Aiken Cutter-Layboy Units to get sheeting costs down to rock bottom.

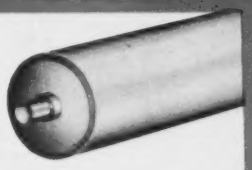
All long-popular, cost-cutting, quality-improving Clark-Aiken features have been retained — adjustable lead-in rolls to remove wrinkles in the sheet, infinite sheet length range accurately maintained, infinite paper travel speed, ball-bearing shearing type slitters, adjustable-speed take off tapes to prevent tearing (on most models) and the exclusive self-sharpening scissors-action Clark-Aiken "Spiral Shear" cylinder knife that cuts clean, sharp edges on any stock. In addition, the new features illustrated have been added to further increase their all-around operating efficiency, economy and accuracy.

With a choice of conventional, overhanging-type or Vickery-type layboy, there's a Clark-Aiken Cutter-Layboy Unit *exactly* suited to your sheeting job. Write for bulletins. The Clark-Aiken Company, Lee, Massachusetts.



Oversize Pinch Rolls for More Positive Grip

Up to 18% more gripping surface for positive feed.

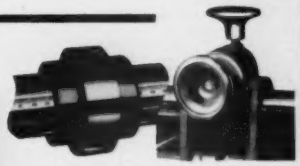


Larger, Sand-Blasted Draw Rolls — Prevent Slippage

Greater gripping surface—non-slip action.

Lifetime Tapes End Tape Troubles

Wear indefinitely; stretch less; eliminate shutdowns.



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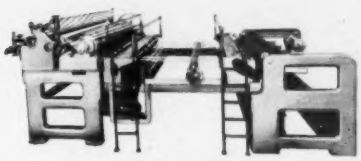
Sheet accurately aligned without use of measuring tape.

Unit Construction for Smooth Operation, Less Broke at High Speeds

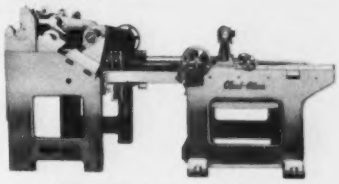
Cutter, delivery, layboy coordinated for unit operation. Heavy cast frames, anti-friction bearings throughout for sustained accuracy at high speeds.

The Complete Line — a unit exactly suited to your sheeting job



Type H Simplex or Duplex for high speed, heavy duty work. 76" — 220" Conventional, overhanging or Vickery delivery.

Type C for extreme accuracy. 76" — 124" Conventional, overhanging or Vickery-type layboy, with or without overlapping delivery.



Type D Economy Unit for finishing room service. 36" —100".

FAST LOADING FOR SOUTHLAND MILL

INSET—MAJ. HENRY A. MAAS, Chief, Woodlands and Wood Procurement, Southland Paper Mills, who was host at American Pulpwood Assn. meeting. In the other picture is example of salvaged tree top destined for Southland mills, as described at the meeting. This salvage diminishes forest drain, extends forest stand in East Texas.

Use of fast-loading equipment for trucks that are kept on the highway, rather than running around in the woods, contributes to a high per-man day production of pulpwood for Southland Paper Mills, Lufkin, Texas. This was reported at a meeting of a technical committee, American Pulpwood Association held in Lufkin March 19-20.

Sending in thinnings in multiple lengths of 12 to 24 feet to the mill's slasher, the operation yields 2¼ cords per man-day compared with a figure, commonly heard, of one cord per man-day.

Maj. Henry A. Maas, chief of woodlands and wood procurement for the famous newsprint mill, was host for the session.

The pulpwood crew in the above operation consists of six pair of log cutters using a 5½ foot cross cut saw, six bunchers each with a work animal, an Allis-Chalmers HD-5 tractor and driver with sulky, a loaderman, a tong hooker, and four trucks with drivers. This crew delivers an average of 55 cords per day to the mill.

The haul to mill ranges from five miles to 75 miles. If a truck can make but two trips a day because of distance, another vehicle is added.

Fast loading in the woods is effected with a GMC 6x6 war surplus truck on which is mounted an American Hoist & Derrick Co. drum driven by a Buda 4-cylinder 45 HP gasoline motor.

When the tractor brings in a loaded sulky it drops the lengths across several poles laid on the ground to facilitate easy slipping of slings under the ends. The loader uses 6x19 Leschen Red Strand rope and sometimes 6x37. The Red Strand 6x37 is used on the tractor as it does not tend to kink too badly on the small drum. The sling is made with an open hook at the wire end that is caught back in a loop about the poles. A hand line terminating in a ring through which the load wire passes above the sling is used to shake the wire, releasing the open hook when the logs (poles) are on the truck.

The Allis-Chalmers tractor with sulky has pulled as high as 118 cords in a single day. Trailers used with 2-ton dual wheel trucks are of standard pole type with dual wheels.

Sources of Wood

The paper mills own 150,000 acres of forest lands originally acquired from large land owners, including lumber companies, interested in establishment of the enterprise. Its pulpwood supply is largely derived from lumber company holdings and from independent producer sources. A single contractor operates on the 235,-

W. L. McHALE, Vice Pres. and Gen. Mgr., Southland Paper Mills, Lufkin, Texas.

000 acres controlled by Southern Pine Lumber Co. with stumpage payments direct to land owner. On Angelina County Lumber Co.'s 285,000 acres, the Southland Paper Mills operates its own show. Of the total 225,000 cords per annum the mill derives 5% from Southern Lumber Co., 5% from Angelina lands, about 5% from Texas Long Leaf Lumber Co. lands. The remaining 85% comes through independent outside producers.

The paper company is in a way part-and-parcel of the east Texas lumber industry and its effective policy is to concentrate on thinnings, tops, and oil-field pines unsuited for good lumber production. When the company buys stumpage for pulpwood, good sawlogs involved are touted to the lumber mills. After a tree passes 8-inches DBH, if it is free of knots and straight-stewwed it is worth more for lumber but otherwise its destination is the paper mill. The mill's range of diameters is 4 to 19 inches but if you see larger sizes passing on a truck you may be sure they were unsuited for lumber.

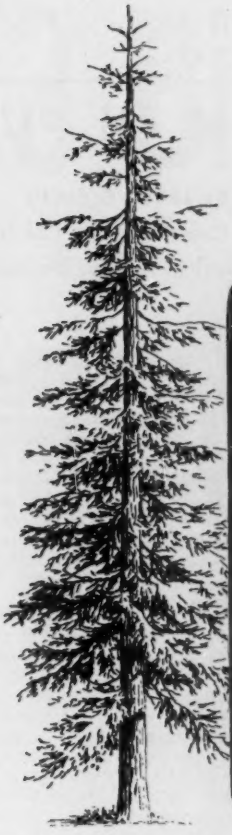
Where there is a mixed yield of pulpwood and logs, the cutters have heir identifying marks and are paid accordingly. Sawlogs are bunched separately.

In salvaging tree tops following a logging operation on Angelina County Lumber lands the delivery of the pole to the mill slasher is not practical as in many instances the top may yield only one or two 4-ft. cuts. By comparison, the salvaging of tree tops yields an average production of 1½ cords per man day to the mill. Trimmers go in first to limb the top. It is bunched with animals, cut to length with a power saw, and loaded onto a company-made trailer of 3-cord capacity. The trailer is drawn through the woods from one loading spot to another by a Caterpillar D-4 tractor. When completely loaded it is spotted at a "landing" either established on a good woods trail or highway where the truck can pick it up. An empty is picked up here by the tractor and started on its rounds.

The salvage crew includes one tractor driver and his helper, four trimmers, two teamsters with one animal each for bunching, one motor truck and three trailers. This crew will produce and deliver to the mill 90 cords per week. The work week is five days and the haul may range from one to 25 miles. During summer, salvaging operations are not permitted to lag more than three weeks behind logging but in winter months it may stretch to six weeks.

Yield from salvage ranges, widely according to the type of timber. Where the stand is small trees, salvage may equal lumber recovered. On tall slender trees the loggers go up to 7-in. diameter and leave the balance. In other parts of the stand the top may be quite limby with large knots requiring four times the amount of cleaning work. Care is exercised in limbing operation to leave a smooth finished job. The paper mill receives from 100 to 150 cords weekly from top salvage operations.

The company finds its tractor-sulky and straight tractor-trailer drawing operations most economical. By keeping trucks "out of the woods" it has increased truck tire life by 50% (and remember truck tires went up 50% in price in 18 months). Since the company keeps 500 tires "on the ground" a substantial savings is involved. Another interesting factor is that since keeping trucks on good roads and out of "the woods" the company finds tires are not cut up by tree stumps and that 50% of them can be recapped, with further savings.



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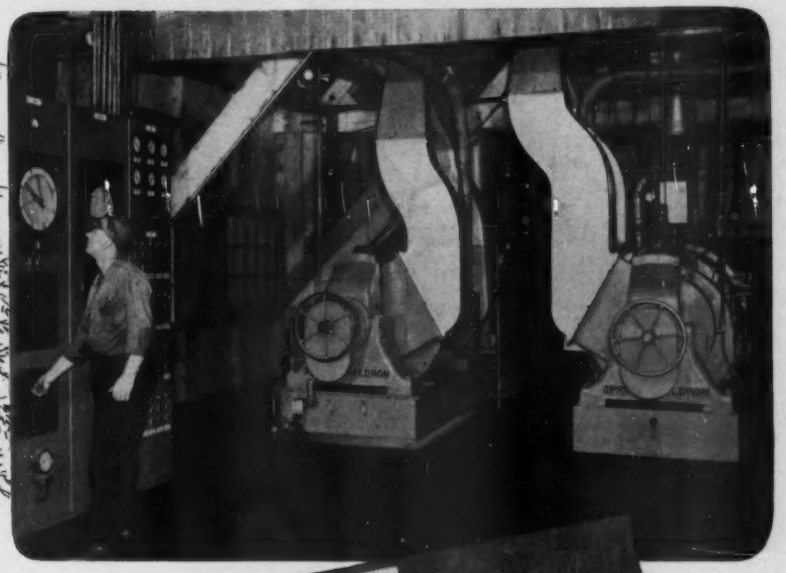

Two Sprout-Waldron 36-2 Refiners prepare pulp from Asplund Fiber for the well-known P. V. BRAND hardboard.

- **High pulp quality**
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This Sprout-Waldron technical publication reports important information on new and improved pulping processes—including semichemical pulping.

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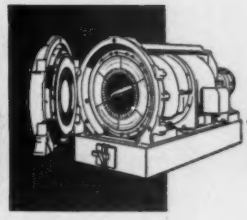

SPROUT-WALDRON

PULP REFINERS

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Prize-Winning Paper ⊛ Shibley Contest ⊛ 1952

RAPID ESTIMATION OF CALCIUM IN PULP

RAYONIER MAN IS PRIZE WINNER

Papers on Versenes, Chip Packing, Sulfur Saving

The annual Shibley Award contest of Pacific Section TAPPI was held March 21 at Camas, Wash., featuring papers by young technicians of the industry. Robert I. Thieme, Soundview Division of Scott Paper Co., and chairman of the Shibley committee, presided.

LeRoy E. Smith, who is chemist with Rayonier, Inc., Hoquiam, Wash., won top honors and $50 for his paper "A Rapid Estimation of Calcium in Pulp," covering a process used at the Hoquiam plant for the past few months. He reports that the ability of "versenes" to form complex metallic ions is used to effect extraction and subsequent estimation of calcium in pulp. Both calcium and magnesium are extracted simultaneously and titrated as calcium, a factor of 0.74 then being applied as a correction for magnesium present.

According to Mr. Smith:

"The data compiled in this manner showed that a reliable and a fast control test had been developed. The total time consumed is 5 to 10 minutes per test."

Other Shibley contestants were:

W. J. Hall, Pulp Division, Weyerhaeuser Timber Co., Springfield, Ore., who presented a paper on "Sulfate Black Liquor Evaporator Tube Plugging." His conclusion:

"Scale formation is probably the initial phase of tube plugging, therefore control of the scaling tendency should help to prevent plug formation. The scale may best be controlled by removing the superheat in the steam and employing more effective boiling out procedures."

Wesley L. Pearl, Longview Fibre Co., Longview, Wash., presented, "A Method for the Estimation of Decay in Douglas Fir Wood Chips."

Chip Packing Results

Alan S. Rosenfeld, Central Research Department. Crown Zellerbach Corp., Camas, Wash., treated on "Some Effects of Extreme Chip Packing in the Sulfite Process." This paper reports that extreme chip packing in an experimental digester resulted in 23-25% increase in yield of air-dried screened pulp per unit digester volume for Western hemlock calcium base sulfite. With no change in the combined sulfur dioxide of the sulfite cooking liquor, extreme chip packing caused losses of 4.5% in G. E. brightness at 460 mmu and 0.8% in the yield of screened pulp, caused no loss in bursting strength or tearing resistance, and shortened cooking time.

SVARRE HAZELQUIST (left), Tech. Director at Longview, Wash., for Pulp Div., Weyerhaeuser Timber Co., who was elected new Chairman of Pacific Coast section of TAPPI, and—LEROY E. SMITH (right), Chemist, Rayonier Inc., Hoquiam, Wash., who was 1952 Shibley Award winner in a field of five contestants with paper on "Rapid Estimation of Calcium in Pulp."

Adjusting the combined sulfur dioxide in the cooking liquor for a chip-packed cook so that the ratio of combined sulfur dioxide to moisture-free wood in the digester equalled that ratio for a normal cook, increased G. E. brightness 2 points, increased cooking time, and increased bursting strength 6.5% and tearing resistance 11 per cent.

Sulfur Savings

R. G. Stewart, Crown Zellerbach Corp., gave a paper on "Sulfur Savings at Camas" covering a program which determined that: Pulp quality can be improved by lowering digester strainers and using split-return liquor flow system: production can be increased through chip packing; "screen yield" can be increased through reducing per cent screenings; sulfur, steam and limerock usage can be reduced.

He says, "Not only have we been able to maintain past production records, but we have actually increased production in this time of emergency without requiring additional sulfur allocation."

Following the contest, Pacific Section TAPPI elected officers. S. E. Hazelquist, technical director, Pulp Division, Weyerhaeuser Timber Co., Longview, was elected chairman; Fred J. Weleber, chief chemist, Publishers' Paper Co., Oregon City, vice chairman; H. B. Petersen, technical sales representative of Hercules Powder Co., Portland, Ore., secretary-treasurer. Elected also to the executive committee: Robert M. True, General Dyestuff Corp., Portland; B. T. Briggs, Research Division, Rayonier, Inc., Shelton, Wash., and E. H. Nunn, technical director, Crown Zellerbach Corp., West Linn.

By LeRoy E. Smith
Chemist, Rayonier Inc., Grays Harbor Division

Abstract

The ability of the "Versenes"[1] to form complex metallic ions is utilized to effect an extraction and subsequent estimation of calcium in pulp. Both calcium and magnesium are extracted simultaneously and titrated as calcium. Therefore, some previous knowledge of the ratio in which they exist is necessary to provide an empirical factor, which may be applied to obtain calcium. A control procedure requiring only 5 to 10 minutes is described.

Maintaining a uniform level of Ca in the finished highly purified cellulose pulps is a problem which has taxed control chemists' intuitive ability. The delay encountered when using the classical gravimetric procedures often does not give sufficient warning of changing conditions. The procedures very briefly described below give a reliable estimation of calcium in 5 to 10 minutes instead of the 3 to 4 hours required for the gravimetric determinations.

The salts of certain polyamino acids are powerful complexing or sequestering agents for bivalent metallic ions or those of high valency. The one used in this work was the tetra sodium salt of ethylenediamine tetra acetic acid. A simple registered trade name, "Versene,"[1] has been applied to this and some similar compounds by the Bersworth Chemical Co., from whom our supply of chemical was obtained. The term versenate shall hereafter in this article designate a salt of the above compound. Under the high pH conditions of the reaction a calcium ion enters a ring structure and is no longer available for normal chemical reactions.

While attempting to develop a fast method for calcium, it was discovered that a versenate solution would completely remove the calcium and magnesium from pulp. The fast Schwartzenbach[2] titration method for total hardness in water was adapted for use with this observed extraction. The method evolved consists essentially of the following steps:

1. Treat a weighed sample of sheet pulp on a Buchner funnel with a measured excess of a standard versenate solution.
2. Obtain the extract and washings.
3. Add a measured volume of standard $CaCl_2$ solution equivalent to the amount of versenate used.
4. Add buffer solution and indicator.
5. Titrate with more versenate solution

3 Big Advantages

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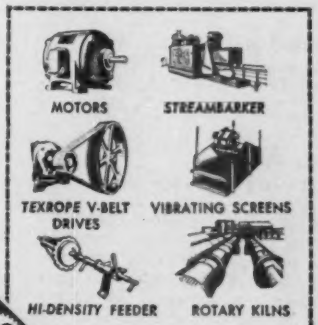

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to the indicator's color change.

The titration represents the amount of calcium and magnesium present in the pulp. The total is readily calculated as calcium. An empirical factor, predetermined for a given pulp and set of mill conditions is applied to give calcium alone.

The above procedure may be used on slush stock if the sample is first dewatered with acetone so that a small volume of versenate will easily wet all the stock. Following extraction the stock is again dewatered and ovendried to get the weight of sample used. The time required for the slush procedure is about 25 minutes including sample drying time.

Table I shows the agreement obtained on sheet pulp analyses during the month of January 1952. Listed here are all the tests which were run by both methods for calcium. The results were contributed by six different analysts.

The Ca/Ca + Mg ratio must be constant if this method is to be successfully applied to the determination of Ca. Such is normally the case in any mill when the water does not vary widely in composition.

The analytical grades of complexing agents are fairly new on the market. Many of the older time-consuming determinations might well be examined for possible volumetric applications. Further as new specific indicators are discovered, many routine control analyses will undoubtedly be shortened.

TABLE I

COMPARISON OF GRAVIMETRIC vs. VERSENATE CALCIUM

Date	Gravimetric Ca, %	Versenate Ca, %	Deviation*	% Deviation
Jan. 1, '52	0.022	0.021	-0.001	-4.5
2	0.020	0.019	-0.001	-5.0
3	0.022	0.021	-0.001	-4.5
4	0.019	0.019		
5	0.019	0.021	+0.002	+10.5
7	0.024	0.024		
9	0.018	0.019	+0.001	+5.6
11	0.019	0.019		
11	0.017	0.017		
12	0.017	0.018	+0.001	+5.9
13	0.023	0.023		
15	0.020	0.020		
16	0.021	0.023	+0.002	+9.6
19	0.021	0.021		
20	0.019	0.019		
21	0.019	0.019		
21	0.022	0.022		
22	0.021	0.021		
22	0.022	0.021	-0.001	-4.5
23	0.020	0.020		
26	0.021	0.021		
27	0.022	0.022		
28	0.021	0.020	-0.001	-4.8
29	0.020	0.020		
30	0.021	0.021		
31	0.020	0.020		

* With respect to gravimetric Ca.

Mean Deviation = 2.0%

Shibley Contest Paper —An Abridged Version

This is a somewhat abbreviated version of the 1952 prize winning paper in the annual Shibley Award contest for young employes in the Pacific Coast mills. Delivery, preparation and organization are major factors in deciding the award and the contest is staged each year by Pacific Coast TAPPI. R. I. Thieme, technical director, Soundview Div., Scott Paper Co., was chairman of the contest committee this year.

The winner, LeRoy Smith received his B.A. in chemistry from the University of Oregon in 1933 and his M.S. in chemistry in 1937 (minor-metallurgy) from Oregon State College. He joined Rayonier at Hoquiam, Wash., in the fall of 1937. He is married and has four children.

The process he describes in this paper has been used for the past few months at Hoquiam.

Literature Citations

1. "The Versenes," Technical Bulletin No. 2; Bersworth Chemical Company, Framingham, Mass., 1951
2. Schwarzenbach, T. Chimia 2, 56 (1948)

Bob True Praised For 10 Years' Service

Robert M. True, western executive for General Dyestuff Corp., Portland, Ore., was paid high tribute by associates in Pacific Coast TAPPI, when he concluded a decade of service to that organization as its secretary-treasurer at the final section meeting at Camas, Wash., for the 1951-52 term.

Mr. True, who wrote to PULP & PAPER on the Michigan Phoenix Project (quoted on page 28), decided to turn over his TAPPI records to a successor after being re-elected to the position for ten successive years.

This is the oldest and the largest section in TAPPI—having been the first section created back in 1928 and he was its ninth secretary-treasurer, but held the office almost as long as all his predecessors combined. They were Dr. H. K. Benson, Myron Black, Sid Drew, Albert S. Quinn, the late Walter Hodges, Earl Thompson, J. V. B. Cox, and Fred Shanaman—the latter having held it three years.

Mr. True is a native of Jackson, Mich., and was identified with the Michigan industry before moving west. He attended the University of Michigan, 1918-24, earning an MSE in chem engineering under Prof. A. H. White, now retired. His first jobs were with KVP and Bryant mills in Kalamazoo.

OTHER CONTESTANTS AND NEW OFFICERS: Top Row (l to r): WESLEY L. PEARL, Longview Fibre Co.; ALAN S. ROSENFELD, Central Research, Crown Z, and W. J. HALL, Weyerhaeuser, Springfield, Ore. Lower Row (l to r): R. G. STUART, Crown Z, Camas, also a contestant; FRED J. WELEBER, Publishers' Paper Co., new Vice Chairman of Section, and H. B. PETERSON, Hercules Powder Co., new Secretary-Treasurer.

Fire At Pensacola

Fire originating from sparks of an acetylene torch destroyed 2400 tons of paper in temporary storage with an estimated loss at from $350,000 to $400,000 at the Pensacola, Fla., converting mill of St. Regis Paper Co. on March 17.

ALL DISSOLVING PULP MEN

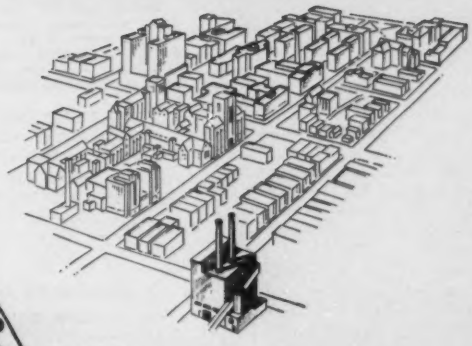
Japanese and Canadian dissolving pulp leaders got together recently at Woodfibre, B. C., Mill of ALASKA PINE & CELLULOSE Ltd. Left to right: JUN YAMAMOTO, Mgr. of Research and Production at Akita Mill, Tohoku Pulp Co. (60,000 tons year dissolving pulp); JOHN GUTHRIE, Woodfibre Mill Mgr.; SHOHEI HAYASHI, Prod. Mgr. of Ishinomaki Mill, Tohoku Pulp Co. (40,000 tons year—2/3rd paper and 1/3 dissolving pulp); and L. K. BICKELL, Chief Chemist, Cellulose Div., Alaska Pine, Vancouver, B. C.

STEAM CENTER for a Medical Center

The new steam center of the Medical Center Steam Company, serving the University of Illinois and others in the Medical Center Area in Chicago provides a single, economical and reliable source of steam for all buildings in the group.

Three boilers, each with a capacity of 90,000 pounds per hour, distribute steam through underground pipes laid in 4600 feet of tunnels. Provision has been made for future expansion.

The steam plant and distribution system were designed and constructed by Stone & Webster Engineering Corporation.



STONE & WEBSTER ENGINEERING CORPORATION

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Personals

PACIFIC COAST NOTES

FRED HOFFMAN, president of Hydraulic Supply Mfg. Co. of Seattle, underwent a double hernia operation recently and he was amazed at the new medical practice of hurrying to ambulatory status, instead of the old long convalescence in bed.

ED T. BELLEW, engineering with Henry Ward Beecher Co., in Seattle, made an April trip to his old home in Appleton, Wis., because of death of a sister. He formerly was in Neenah, Wis., with Kimberly-Clark before coming west to serve in the mills, including Soundview and Weyerhaeuser.

PHIL BANNAN, vice president, Western Gear Works, Seattle, made a week's trip to Southern California in April.

GEORGE A. HOLT, resident manager, Rayonier, Hoquiam, Wash., had a vacation recently in the Southwest country.

WINSTON SCOTT, assistant resident manager, Rayonier, Shelton, Wash., and Mrs. Scott visited his sister and brother-in-law the A. L. Clarks, in Havana, Cuba, recently and came back home by way of Washington, D. C. and Baltimore. On the way they saw the Mardi Gras in New Orleans.

CHARLES WILLIAM (Bill) CASSELL, chief engineer, Everett Pulp & Paper division of Simpson Logging Co., was given a tribute in Noble & Wood Machine Co. publication. It stated that Bill was "first to conceive the use of the Asplund Defibrator for producing mechanical wood fiber as a substitute for rag fibers in roofing and flooring felts and assisted in developing this technique" while works chemist at Congoleum-Nairn Co. in Maryland. He attended Purdue and the Appleton Institute and went west from Michigan.

J. P. GREGSON, pipefitter in the Longview pulp operations of Weyerhaeuser, is boasting of his son, Jack, who recently, at the age of 15, tied the Oregon state breast stroke swimming record. Also in the Pacific Northwest AAU meet in Seattle, he won the breast stroke and two free style events.

GEORGE J. PECARO, vice president and general manager of The Flintkote Co., Pioneer Div., Los Angeles, was elected a Flintkote director at a recent board meeting in Boston. Since 1947 he has served as general manager of the Pioneer Division, and has been a vice president since 1948.

HUGH MOUNT, for many years a representative of chemical companies and products to the pulp and paper mills in the Northwest, died recently in Portland, Ore. He was a former partner of Fred Alsop.

HUGH C. OLDS, 56, for past 29 years office manager of Crown Zellerbach Corp., Lebanon, Ore., died of a heart attack March 27 at his home in this city. He was employed by the Crown organization in 1919, working at Camas, Wash. mill until transfering to Lebanon in January 1923. He is survived by his widow, Mrs. Neta Waller Olds, and two sons, William and Robert.

NEW SAFETY DIRECTOR

VICTOR C. GAULT (left), who has been appointed General Safety Director for all Crown Zellerbach operations, with headquarters in Portland, Ore., succeeding OTTO R. HARTWIG (right), who will be retired under the company retirement plan as of July 1. Mr. Gault is currently Industrial and Community Relations Supervisor for the Camas, Wash., Division. He has been with the company 35 years. Mr. Hartwig, who served C-Z for 15 years and is nationally recognized for outstanding work in the safety field, is planning to establish his own consulting service in the Portland area.

CROWN Z PROMOTIONS

WOLFE C. GIGLER (left), who has been appointed Supt. of the new San Leandro, Calif. paper converting plant now under construction. He has been Supt. of Converting at the Camas, Wash., mill since Aug. 1951, and his father, Jake Gigler, is Supt. of one of the two company converting divisions in Los Angeles.

GEORGE LaHUSEN (right), promoted to Personnel and Safety Supervisor at the West Linn, Ore., Crown Z Mill. He had been Assistant Supervisor under D. S. Coney, whose appointment as Res. Mgr. at San Leandro was announced in these pages in the March issue.

J. Y. BARUH, honorary vice president of Crown Zellerbach Corp., has sent in notice of change in executive offices address for Crown Z in Los Angeles—they have moved to 3440 Wilshire Blvd.—Room 914, Los Angeles 5. Telephone—Dunkirk 8-2423.

Oregon Safety Conference is Held

Last in the series of 1952 Labor Management Safety Conferences for the Pacific Coast mills—the Oregon state meeting—was held Mar. 13-14 in Portland, Ore. Details of the big meeting in Washington state were published in March issue of PULP & PAPER, with safety records of mills for the entire coast. And the California meeting was reported last month.

Although the industry's injury frequency rate has been reduced about 80% in Oregon since this joint safety program started, Portland participants expressed conviction further improvement will be accomplished.

Robert Hetherington, job analyst for the AFL Paper Makers Union and Pulp, Sulfite & Paper Mill Workers Union, presented the opening address. He said effective safety programs start with management and must be actively pushed by management to make every worker sufficiently aware that he must be a safe worker to stay on the job, and must never sacrifice safety for production. He asked representatives of labor to actively promote safety programs and repeatedly explain objectives, benefits and importance.

Chris T. Nyland, St. Helens Pulp & Paper Co., was general chairman. S. W. Grimes, secretary of Pacific Coast Association of Pulp & Paper Manufacturers, and I. D. Isaacson, vice president, Pulp, Sulfite Union, presided as co-chairmen of the sessions.

S. J. Robinson, general manager of Publishers' Paper Co., was dinner toastmaster. A trophy went to the Lebanon C-Z mill for having the lowest injury frequency rate during the 5-year period 1947-1951.

AT OREGON SAFETY Conference:

Top, l to r: BOB HETHERINGTON, Job Analyst for AFL unions, Portland, Ore.; JUDGE MATTHEW W. HILL, Wash. State Supreme Court; S. J. ROBINSON, Gen. Mgr., Publishers Paper Co., Oregon City, and CHRIS T. NYLAND, St. Helens Pulp & Paper Co., St. Helens, Ore., Gen. Chairman of State group.
Second row, l to r: JOHN SHERMAN, Vice Pres., Pulp, Sulfite Workers, Tacoma, Wash.; RES. MGR. HERBERT WYMORE of Lebanon, Ore., mill of Crown Z., winner of State Safety award (Mr. Wymore has since been transferred to Carthage, N.Y., as Res. Mgr.); and JOHN SIMI, member of Lebanon Mill's millwright crew.
Below: S. W. GRIMES, Coast Assn. of P & P Mfgrs., Co-Chairman of Coast conferences, and DOROTHY McCULLOUGH LEE, Mayor of Portland, Ore.

Will Your Pressure Regulators Last 25 Years?

...on Molding Press Service

for instance

THE INSTALLATION

Crane Brass Pressure Regulators on steam lines to rubber molding presses; Dryden Rubber Division, Sheller Mfg. Corp., Chicago. 225 units in service.

VALVE SERVICE RATINGS

FEATURES:	Equally good on steam or air
SUITABILITY:	Steady outlet pressure - no drift
MAINTENANCE COST:	Routine servicing only
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THE HISTORY

Steam generated at 130 psi is reduced through individual regulators on molding presses. Pressure used at machines is 60 to 100 psi depending on work. Features of regulator service needed most are: (1) non-fluctuating outlet pressure automatically maintained within close regulation; (2) easy adjustment by press operator to specified pressure for given work.

More than 25 years ago the plant standardized on Crane Regulators, a total of 225 being in use today. Many are the original installations, still delivering desired outlet pressure. Records for all regulators, regardless of age, show no maintenance cost other than prescribed simple routine servicing. On old models of the Crane 960 regulator, after prolonged service, this includes occasional regrinding of seats.

THE VALVE

Crane No. 960 Brass Pressure Regulators reduce steam or air pressures up to 250 psi, to within 80% of inlet pressure. Factory pre-set to operate within any of 4 ranges from 1 to 200 psi, with easily selected service pressure within set range. Precision made; fully automatic; highly dependable, even under reasonable fluctuation of inlet pressure. All wearing parts renewable. See your Crane Catalog or Crane Representative for full data.

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Personals

JAMES R. LIENTZ, center, promoted to Manager of Pulp and Paper Div., Union Bag & Paper Corp., Savannah plant, holds a meeting with six others elevated to higher positions. Left to right, W. C. CHAPMAN, Superintendent, Mill Technical Department; G. C. KIMBLE, assistant technical director; A. S. FARRAGUT, Pulp Mill Superintendent; Mr. Lientz; H. Y. CHARBONNIER, Assistant Manager, Pulp and Paper Division; T. C. JOHNSON, General Operating Superintendent of the division; and J. J. WARD, Power Maintenance Engineer, Pulp and Paper Division.

SOUTHERN NOTES

G. W. E. NICHOLSON has been named a member of the board of directors of Union Bag & Paper Co., bringing its membership to 15. He has been v.p. in charge of manufacturing for five years, and previously manager at Savannah. He has been a company executive 12 years.

G. T. (Ted) WEGNER, who originally came to Pensacola, Fla., with the late James H. Allen to erect the "Florida" mill has become a member of the New York staff of J. B. Eakin, vice-president i.c. of purchasing for St. Regis Paper Co. Mr. Wegner had been active in expediting materials for the recently completed expansion of the Pensacola mill.

SURREY W. SLATER, a private pulp and paper mill consultant, home in Lufkin, Texas, died recently there. He had been in this industry for 40 years. His widow, Mrs. Elizabeth Slater, and a son and daughter at Lufkin, and a daughter by previous marriage in East Orange, N. J., survive.

ANTON M. LUND, vice president, engineering and equipment, Hudson Pulp & Paper Corp., who has had leading role in construction of the Palatka, Florida, units, was tributed in a recent Noble & Wood Machine Co. magazine issue "Papermaker of the Month." It told how he graduated from schools in Norway and started in mills there, came to the U. S. in 1925 and went to work at Plattsburg, N. Y. He became Mazer Paper Co. superintendent in Lansdowne, Pa., and moved up in the Mazer-Hudson companies, rebuilding the Augusta, Me., tissue mill and took charge of the Palatka developments in Florida in 1946.

JAMES R. LIENTZ has been promoted from general superintendent to general manager, Pulp and Paper Division, Union Bag & Paper Corp. Savannah.

C. E. HARTFORD resigned to accept a vice presidency with the Riegel Carolina Corp. and the resident manager's post of that company's new Acme, N. C. plant.

MR. LIENTZ joined Union Bag in 1940, coming from Swenson Evaporator Co., and in 1948 was promoted to general superintendent. He is a graduate of the University of Michigan where he received an M.S. in chem. engineering.

DR. HARTFORD came to Savannah in 1941 from Panama City, Fla., where he was on the technical staff of the Southern Kraft Div. International Paper. Other Union Bag promotions:

H. Y. CHARBONNIER, former assistant technical director, to assistant manager of the Pulp and Paper Division, and *T. C. JOHNSON*, superintendent of the Pulp Mill, to general operating superintendent of the division.

G. C. KIMBLE, superintendent of Mill Technical Department, to assistant technical director.

W. C. CHAPMAN, superintendent of Factory Technical Department, to superintendent of Mill Technical Department.

EASTERN NOTES

JAMES BROWN, formerly with Scott Paper Co. at South Glens Falls, N.Y., has been transferred to the company's Marinette, Wis., operations as production manager. At Scott's Fort Edward, N.Y. plant, *EARLE LEAMAN*, technical assistant to the paper mill superintendent, was named along with *LIN MARTIN* as liaison co-chairman in a drive headed by *DARCY WILKINSON*, plant manager, to cut all mill waste.

ROBERT W. ANDREWS has been named assistant to the president of Brown Co., Berlin, N.H. Mr. Andrews' experience includes several years with Minnesota and Ontario Paper Co. where he served as chief engineer, executive vice president and senior vice president. He is a graduate of the University of Maine.

STANLEY RESOR, president of J. Walter Thompson Co., has been elected a director of Scott Paper Co. to fill the vacancy created by the death in March of *GILBERT KINNEY*.

OFFICERS elected by P. H. Glatfelter Co.: *P. H. GLATFELTER*, president and treasurer; *P. H. GLATFELTER III*, executive vice-president and general manager; *R. H. BENTZ*, vice president in charge of manufacturing; and *P. KOENIG*, vice president and comptroller. Announcement was made of the retirement of *W. S. MC CLELLAN*, formerly vice president in charge of sales, after 40 years with Glatfelter.

ALEX J. PAGEL, president of Pagel, Horton & Co., Inc., New York City, has been elected president of the Swedish Chamber of Commerce of the U.S.A.

S. B. ROBERTS, chief engineer of Celanese Corp. of America, has moved his offices from 2 Park Ave. to the corporation headquarters, which are at 180 Madison Ave., New York 16.

WASHINGTON, D. C., certificates for "outstanding" government service went to *PAUL BUTLER*, Butler Paper Co.; *M. H. COLLETT*, West Virginia Pulp & Paper Co.; *J. R. CRYAN*, Fraser Paper Ltd.; *J. E. FRANZEN*, Hammermill Paper Co.; *FRANK HEYWARD*, Gaylord Container Corp.; *J. L. MADDEN*, Hollingsworth & Whitney Co.; *J. B. MISENHEIMER*, American Can Co.; *J. W. MOORE*, International Paper Co.; *C. S. MOYER*, Central Fibre Products Co.; *E. STEIN*, Stein Hall & Co., and *G. J. TICOUIAT*, Crown Zellerbach Corp.

Oliver United Offices

PHILIP J. McGUIRE, new Director of Research & Development, for Oliver United Filters Inc. program of developing new products.

WARD H. PITKIN (left), Asst. Gen. Sales Mgr., transferred from New York to Oliver United's home office—Oakland, Calif.—and CARLTON W. CRUMB (right), Sales Promotion Mgr., both of whom have transferred from New York to Oliver United's home office, Oakland, Calif., in program for consolidating activities there.

The appointments and organization changes described with these photographs of top key men in Oliver United Filters, Inc., is part of a long range program for concentrating offices in Oakland, Calif., and also diversifying and adding new products to its line of filtration equipment.

The Oliver-Ahlfors Upflow Vibrating Pulp Screen, particularly suited to primary and secondary screening of pulps, is an item being highlighted. Last year PULP & PAPER reported Oliver acquired this high capacity screen from Sweden.

In a recent issue, we published the photograph and story of appointment of James B. Hoxie, as new western division sales manager for Oliver United. In that article we announced appointment of his predecessor in that position, Philip J. McGuire, to the new position of director of research and development. Mr. McGuire's 26 years with Oliver gives his valuable experience for a new program of extending and developing Oliver lines.

Sulphur

Molten Sulphur flowing into the storage vat

Thousands of tons mined daily, but where does it all go?

Look around you in any grocery store and what do you see — canned goods of all kinds! Soups, vegetables, fruits, berries! Believe it or not, you're looking at merchandise that consumed a lot of Sulphur in the making.

Tin cans are made of tin plate. Tin plate is made of sheet steel. Sheet steel is made with the help of sulphuric acid—pickling, as they call it, the process that removes scale preparatory to plating. In 1951, the sheet division of our great iron and steel industry is estimated to have consumed 140,000 long tons of Sulphur in the form of sulphuric acid. That in itself makes quite a dent in our supplies of Sulphur. Add to this almost as much more for treating wire rod, plate, strip, bars, etc., and you can see that to make finished steel, regardless of form, the iron and steel industry must use lots of Sulphur in the form of sulphuric acid.

Right here is an excellent example of the interdependence of all of our industries. To produce steel requires a lot of Sulphur. To produce Sulphur and other mined products requires a lot of steel. This interdependence of industries is one of the country's sources of strength.

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

News and Notes from ▣ ▣ ▣
EQUIPMENT AND SUPPLY COMPANIES

HAROLD INGALLS, formerly with the paper mill department of *NICHOLS ENGINEERING & RESEARCH CORP.*, is associating with Ruel E. Taylor, 25 Commercial St., Portland, Me., as a manufacturer's representative. Mr. Ingalls will represent *Nichols* in Northern New England, and other accounts will include: Buffalo Pumps, Inc.; Detjen Corp.; W. B. Coleman Co.; and Sven Pederson Corp., and Fabri-valves.

WARREN STEAM PUMP CO., INC., Warren, Mass., announce improved models of Types VS and VN Sump Pumps. These are illustrated and described in an eight page, two color Bulletin WQ-220, sent upon request.

A. O. SMITH CORP. has moved its welding equipment plant into a 27,000-square foot Milwaukee building from overcrowded quarters at the company's main operations at Milwaukee Works. Besides providing needed space for assembly lines for A. O. Smith's 12 basic welder models, the building also houses experimental shops and some sales offices. Space vacated at Milwaukee Works is being utilized for expanded welding electrode production.

ALLIS-CHALMERS instruction booklets covering installation, operation and repair of its single-stage, single-suction and multi-stage centrifugal pumps have been released. Booklets 08X7780 and 08X7813—the former covering multi-stage and the latter single-stage, single-suction centrifugal pumps—are available on request from Allis-Chalmers Mfg. Co., 995 S. 70th St., Milwaukee, Wis.

OHIO KNIFE CO. of Cincinnati is adding 30,000 sq. ft. of production space to its present knife-manufacturing plant. This current building program is the fourth major expansion made by the Ohio Knife Co. in the past ten years.

NICHOLS ENGINEERING & RESEARCH CORP., New York, announces appointment of Albert O. Dyson as manager of its Pulp & Paper Division, succeeding H. E. Ingalls. Mr. Dyson is a graduate of the Pulp & Paper Course at the University of Maine. Previous to joining Nichols in 1948 he was employed by American Writing Paper Corp. in Holyoke, Mass. and F. S. Webster Co., Cambridge, Mass., manufacturers of carbon papers and typewriter ribbons, as technical director.

ANTARA CHEMICALS, a division of General Dyestuff Corp., has announced a number of sales and technical department personnel changes. Harold G. Shelton, Antara sales manager says Dr. P. M. Kirk will be assistant sales manager; T. R. Moore will be assistant sales manager in charge of produce line and sales service; Walter R. Brandt will become market manager of textile, leather and lake chemicals; and J. M. Cloney becomes market manager of industrial chemicals.

FOR FINE SCREENING of raw intake water, hot pond or cleanup water, the NORTH WATER FILTER is rated as adaptable to unlimited applications. A rotary, self-cleaning, gravity type screen unit, designed specifically for this industry by Green Bay Foundry and Machine Works, Green Bay, Wis., it is built in 4, 6, 8 and 10 feet screen sizes to handle varying capacities, and comes fully assembled, ready for operation. Where desired, the unit can be supplied with a special phenolic-resin coating to add acid- and alkali-resistant properties to the metals.

GRATON & KNIGHT CO., Worcester, Mass., has released an interesting 40-page catalog on leather belting. In addition to a description of the Graton & Knight line of beltings, there is a great deal of practical information in the manual on use and maintenance of all various kinds of power belting. The catalog may be obtained by writing the company at 356 Franklin St., Worcester.

BROWN INSTRUMENT DIV., Minneapolis-Honeywell Co., Wayne & Windrim Aves., Philadelphia 44, Pa., will send on request—"Fundamentals of Instrumentation for the Industries," booklet 80-2, which consists of 126 pages. As the title indicates, it covers the fundamentals of measurement, control and transmission of variables encountered in industry. Typical applications are also discussed.

HERCULES POWDER CO. announces appointment of Herbert M. Wendle as assistant director of sales for its Naval Stores Department, in charge of rosin and terpene chemicals. Mr. Wendle has been manager of the department's New York Office for seven years. Richard T. Yates remains as assistant director of sales for the department.

STUART H. SMITH has been appointed sales manager of *SKF INDUSTRIES, INC.*, according to an announcement by R. Robert Zisette, vice-president in charge of sales. Mr. Smith, headquarters at the Philadelphia Plant No. 1. He was assistant sales manager.

THE BLACK-CLAWSON CO., Hamilton, O., has announced purchase of exclusive rights to manufacture and sell the New Moody Automatic Tail Cutter. This new unique tail cutting device is applicable to any paper machine, particularly to higher speed, wide web tail cutting operations.

SHARTLE BROS. MACHINE CO., Middletown, O., builders of the well known "Miami" line of centrifugal pumps, for paper stock and water, announces the addition of a high capacity 24" double suction water pump to the Miami line.

MORDEN MACHINES CO., Portland, Ore., has issued an interesting new booklet "Transart" presentation by means of which the internal construction of the "Stock-Maker" is very clearly and graphically shown. Eight cellophane pages together show outsides and insides of the Stock-Maker by the Transart method. The booklet is available on request from Morden Machines Co., Corbett Bldg., Portland, Ore.

STEIN, HALL & CO., INC., New York elected Robert Strasser, executive vice president and Joseph C. Blauvelt, Said Feldman and Daniel H. Lipman, vice presidents. Ernest Rusch was elected assistant vice president.

ANTARA CHEMICALS DIVISION OF GENERAL DYESTUFF CORP. announces commercial availability of Peregal ST, a new and amazingly effective stripping agent for vat, sulfur and direct dyeings. In many cases the new stripper is ten times as effective as other agents.

RAYBESTOS-MANHATTAN announces the world's largest laboratory conveyor belt testing machine is now in operation at its laboratory at Passaic, N.J., taking the guess out of conveyor belts. It will benefit industries that move bulk material in large volume.

POTDEVIN MACHINE CO. has moved into a new one-story brick industrial building, with manufacturing space of about 102,800 square feet at 285 North St., Teterboro, New Jersey.

HERCULES POWDER CO. has issued a new technical booklet which gives complete technical data about Kymene, an effective strongly cationic resin for wet-strength paper. This booklet includes sections on the properties of Kymene, application factors, properties of wet-strength papers containing Kymene, and testing procedures. Information includes typical test data for Kymene 138 and Kymene 234. Kymene is being used in all types of wet-strength paper and paperboard. .....

SYDNEY HANSEL, president of *HANSEL ENGINEERING CO.*, announces his staff has been substantially increased to meet expansion. In addition to the Seattle office at 1500 Westlake Ave., North, managed by Denis Riches, and the Vancouver, B. C. office at 1637 West Broadway, the firm will shortly have an office in Portland, Ore., managed by Trevor Cooper. In the Southern states, an office will be located soon. Mr. Hansel announces they have acquired manufacturing rights of the Dunbar chipper.

Instrument Makers CHECKED ✓

and chose the BRISTOL DYNAMASTER

Continuous-balancing electronic recorder

The instrument makers whose advertisements appear above know that their reputations depend upon the accuracy and reliability of their recorders. They select each component part with scrupulous care.

As the recording unit in their instruments, they all selected Bristol's Dynamaster. When you choose the Dynamaster for your own measuring needs you are assured of the same accurate, precise instrumentation demanded by these instrument makers.

THERE'S A DYNAMASTER FOR EVERY NEED

Available as a bridge or potentiometer, with strip or circular charts, Dynamasters can measure any variable that can be converted into changes in d-c voltage, d-c current, resistance, or capacitance.

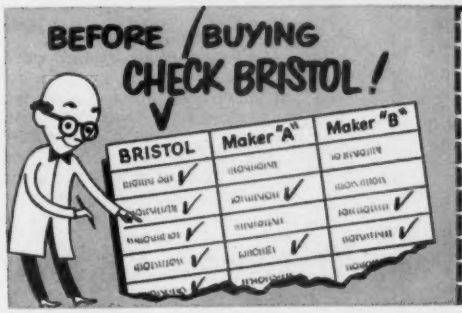
Dynamasters are providing accurate, trouble-free measurement and automatic control of such quantities as temperature, pressure, pH, speed, voltage, power, current, smoke density, strain, and resistance.

BRISTOL

FOR MORE INFORMATION *on the uses of this versatile recorder, use the coupon to get Catalog No. P1245.*

The dependable Guidepost of Industry

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



THE BRISTOL COMPANY
142 Bristol Road
Waterbury 20, Conn.

Please send catalog giving details of Dynamaster performance to:

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

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ST. JOE PAPER CO.'S ACHIEVEMENT

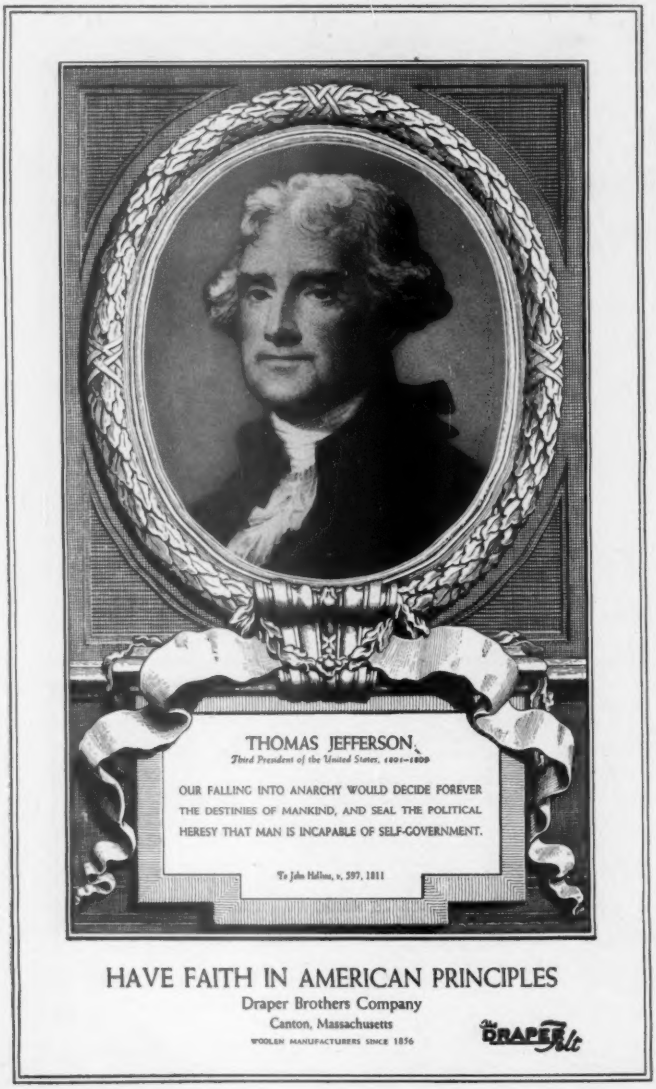
Expansion of St. Joe Paper Co.'s mill at Port St. Joe, Fla., to three times its capacity is regarded in Southern circles as an achievement in forest management. The company feels in time its well managed forest lands, all within 100 miles of the mill and including close-by acreage, can provide 100 per cent of the pulpwood required by the operation.

When St. Joe Paper was founded its site was a community once ranked among the first in the Gulf of Mexico, but epidemic and hurricane had blasted its anticipations. The area's original virgin stand of pine timber had been cut; much of the remaining trees had been growth checked by turpentining; and annual grass wild fires restricted new seedling growth.

Providing a cash market for stagnated turpentined stands and other thinnings for pulpwood—up to as high as 85 per cent of mill needs—the company influence developed an appreciation of need for woods fire control, leading to accelerated restocking of the area. An intensive management plan for its own acres (see PULP & PAPER, Sept. 1948 issue) was put into effect, embracing extensive construction of fire breaks, etc., and involving more than $250,000 in equipment and labor in one year. The company fee lands now stand at approximately 760,000 acres.

The mill expansion will call for an additional 367,500 cords of wood annually. The management of the woodlands and procurement of pulpwood is handled through an office situated on a farm in the outskirts of Tallahassee, completed in 1949. Robert C. Brent, Jr., is general manager of these operations, with H. G. Conrad as assistant. John Beall is assistant in charge of wood procurement.

Roger L. Main is company president; Edward Ball, chairman of the executive committee; and, Harry H. Saunders, production manager. Executive offices are in Jacksonville, with Mr. Saunders in charge at the mill.


THOMAS JEFFERSON
Third President of the United States, 1801–1809
OUR FALLING INTO ANARCHY WOULD DECIDE FOREVER THE DESTINIES OF MANKIND, AND SEAL THE POLITICAL HERESY THAT MAN IS INCAPABLE OF SELF-GOVERNMENT.
To John Holmes, v. 597, 1811
HAVE FAITH IN AMERICAN PRINCIPLES
Draper Brothers Company
Canton, Massachusetts
WOOLEN MANUFACTURERS SINCE 1856
DRAPER Felt

World Shortage in Pulp Cited by Rayonier

Clyde B. Morgan, president of Rayonier, Inc., said in April that there is a world shortage in wood cellulose, and with a strong demand in Europe, South America and Japan where Rayonier products are well known, the Company is in a position to expand overseas sales in countries having dollar exchange as export licenses become available.

In keeping with the long-term growth trend in world demand for cellulose, Rayonier is enlarging its capacity to 460,000 tons a year through a $6,800,000 expansion program now nearing completion at it's present mills. In addition, plans were announced in the March 1952 issue of PULP & PAPER for construction of a new 250 ton pulp mill in Doctortown, Ga., which, with the necessary timberlands, will represent an investment of about $29,000,000. This mill will be in operation in 1954 and will increase overall manufacturing capacity by a further 87,000 tons.

Rayonier operates mills for the manufacture of wood cellulose at Fernandina Beach, Fla., and at Hoquiam, Port Angeles and Shelton, Wash. Its purified wood cellulose is used as a raw material in viscose rayon and acetate textile fibers, tire cord, cellophane, nitro-cellulose, photographic base paper, plastics and other synthetic products.

"Staggering" Taxes

The Westinghouse Electric Corp., in a recent issue of its *News*, reports its Federal income taxes in 1951 were "a staggering $105,000,000, as compared with $77,000,000 in 1950, and state and local taxes were nearly $116,000,000. And that figure does not include social security taxes and excise taxes we had to collect directly from our customers and hand over to the government."

Westinghouse sales rose from a billion dollars in 1950 to one billion and a quarter in 1951—there was a 22% rise in net sales billed, but profits decreased 17%. Taxes were up 33%.

Controlled Vat Dyeing

An important new method which makes possible continuous scientific control of the application of high quality vat dyes is announced by J. Robert Bonnar, technical director of General Dyestuff Corp.

The new method for vat dyes is known as the Marhen process. It provides an electronic control for the reduction potentials which govern the dyeing efficiency of the vat dye-bath. D. E. Marnon and J. H. Hennessey of the General Dyestuff Corp. research staff are inventors of the process.

The development was described by Mr. Bonnar as one of the greatest steps forward in this phase of the dye industry since Indanthrene Blue was first synthesized in 1901.

This headbox in use at Northern Paper Mills, Green Bay, Wisconsin, is built with asbestos-cement Chemstone to assure better service for an extra-long life.

...headboxes stay cleaner...last longer

Wonder *why* Chemstone® helps build headboxes, flow boxes, and consistency regulator boxes that not only *stay cleaner* but *last longer,* too?

It's because Chemstone is the *asbestos-cement* material with all three of these basic advantages that make it ideal for paper mill use:

Chemstone resists slime and bacteria. When flushing is necessary (as in the handling of some groundwoods) Chemstone boxes are easily cleaned by the simple process of hosing down.

Chemstone won't shrink or swell. Made of asbestos and cement, and integrally waterproofed, Chemstone has unusual dimensional stability. It is lightweight—yet exceptionally strong and durable to assure long service.

Chemstone resists chemical action. Like all Johns-Manville asbestos-cement products, Chemstone is free from metallic oxides . . . resists both mild alkalis and acids. Chemstone boxes are unaffected by most mill waters.

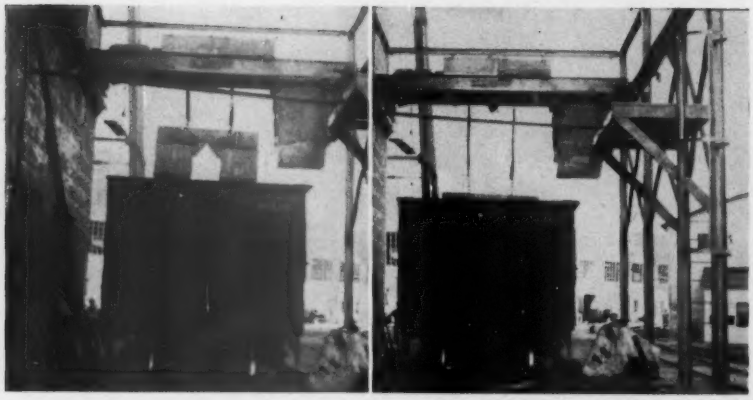
There are *better* boxes in store for your mill if you build them with Chemstone. It is available in sheets 48″ x 96″, in thicknesses from ¼″ to 1¼″. . . and is easy to work with ordinary metal-working tools. For further information about this Johns-Manville product designed for the paper industry, write for data sheet DS series 405. Address Johns-Manville, Box 60, New York 16, New York. In Canada, 199 Bay Street, Toronto, Ontario.

®Reg. U. S. Pat. Off.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville CHEMSTONE

MAKES BETTER BOXES



ACTION VIEWS of a Link-Belt Co. Coal Displacer—this one was being used at Biron, Wis., Division of Consolidated Water Power & Paper Co. Operator is in cage suspended from right end of traveling overhead crane. In picture at left, a large two-section blade, weighing 6,000 lbs. is being dropped into frozen coal mass in the car. In picture at right, the blade, suspended from crane, is almost entirely inside the car. It is repeatedly raised and dropped into the coal mass, breaking up the coal so it can be passed through hopper doors in car bottom.

Higher Wood Cost For Powell River

Like many other big companies whose logging operations extend over a wide area, Powell River Co. calls in its superintendents and key forestry and woods officials every January to hear first-hand reports from them on current problems. The occasion also gives company executives an opportunity to review the situation.

About 40 logging supervisors representing 12 logging areas attended the recent meeting in Vancouver, B.C., and heard a recorded address which President H. S. Foley had made in New York prior to departure for Europe. Executive Vice President M. J. Foley addressed the meeting in person, as did Vice Presidents George O'Brien and John Liersch, Logging Superintendent Tom Murphy and others.

Logging costs for Powell River Co. last year were 25 per cent higher in 1951 than in 1950, Mr. Foley said, and in the first ten moths of 1951 the company "lost" over $300,000 in operating cookhouses, but this situation was probably typical of the whole industry.

Mr. Foley emphasized growing labor cost, following a 16½ percent wage boost, along with cost of living bonus and higher-cost materials.

New Sulfur Supplies

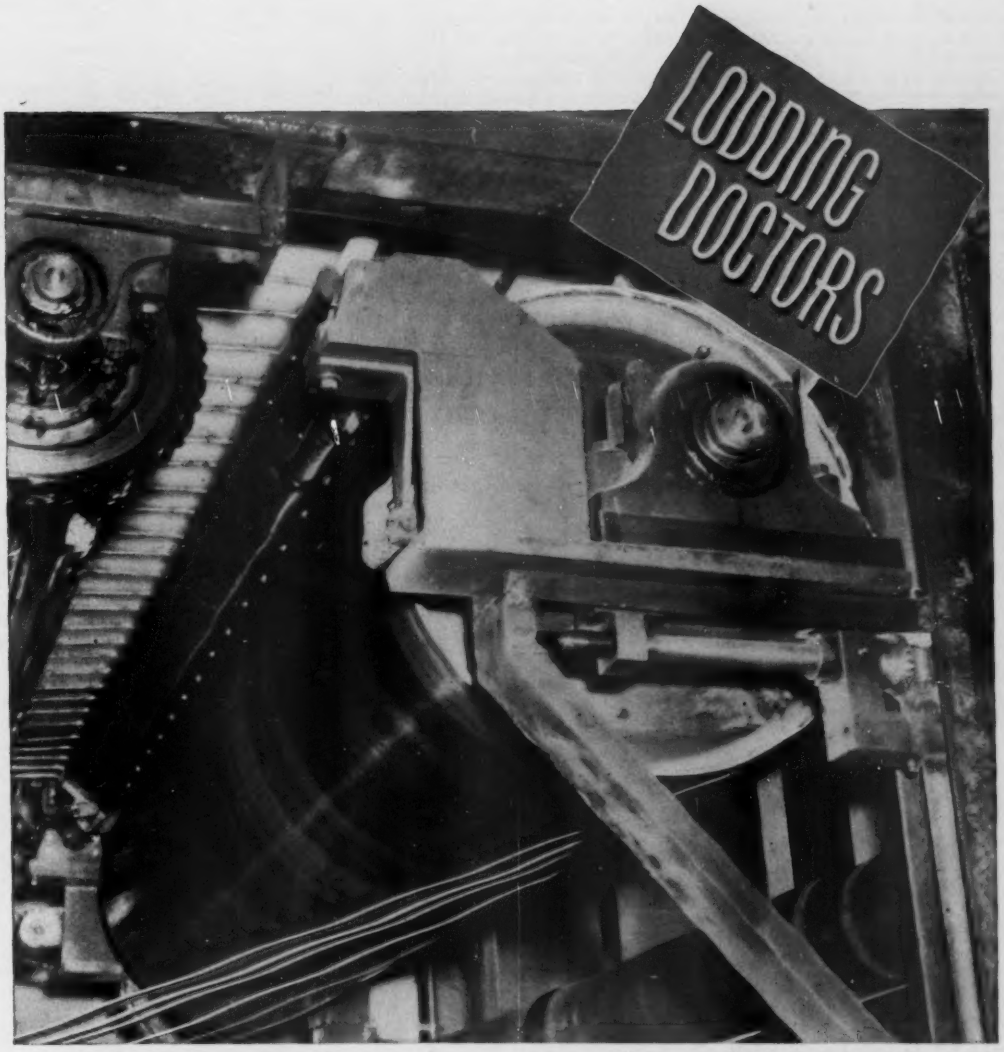
Powell River Co., one of Canada's leading newsprint producers, became with its partner Shell Oil Co. of Canada the country's sole producer of elemental sulfur when its gas-scrubbing plant in the Jumping Pound natural gas field in Alberta started operating last month.

Construction started last spring following the revelation that the pulp industry faced a serious shortage. While Powell River is the only company in the industry that shared in the financing, the output is allocated by the government to Alaska Pine & Cellulose, Pacific Mills, MacMillan & Bloedel, along with Powell River.

The Alberta shipments to be by rail, will make up about 20 per cent of the coast pulp mills requirements.

Other new sources of sulfur in Canada: Royalite Oil plant at Jumping Pound; Canadian Industries Ltd. to produce 90,000 tons of liquid sulfur from gases at International Nickel Co.'s new oxygen-flash smelting process; Aluminum Co. of Canada, 45,000 tons of sulfuric acid at Arvida, Que.; Noranda Mines planned iron pyrite treatment plant; Consolidated Mining & Smelting Co., building a sulfuric acid plant at Trail, B.C.; Nichols Chemical new plant at Valleyfield, Que., to double present yearly output of 100,000 tons of sulfuric acid from pyrites; Britannia Mining & Smelting Co., planning sulfur from 100,000-ton pyrite pile at Howe Sound, B.C.

ROTATION OF SOUTHERN KRAFT DIV., International Paper Co., men to make them familiar with the dissolving pulp mill production technique is being effected by that company. This is currently at staff level.



Unusual Doctor applications are no problem for Lodding. For example, this installation in a mill in Indiana famous for its technical progress.

LODDING ENGINEERING CORPORATION

WORCESTER, MASSACHUSETTS

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BUCKEYE'S FLORIDA PULP PLANS

Paul Honey, at one time pulp superintendent at the Buckeye chemical division mill at Memphis (Tenn.) and later a division manager for Proctor & Gamble, has been placed in charge of Florida properties of Buckeye Cotton Oil Co. This embraces the Buckeye Cellulose Corp., the projected dissolving pulp mill to be erected at Foley, a few miles from Perry, seat of Taylor County, Florida.

The mill site at Foley was originally set up by Brooks-Scanlon, Inc., owners of approximately 444,000 acres of excellent reforesting acres. Brooks-Scanlon had considered erecting a pulp mill, and had plans drawn by Sirrine & Co., Greenville, S.C. The water supply was tested at Foley, and the stream serving the site designated for industrial use by the Florida legislature. However, the Brooks-Scanlon company abandoned this project, concentrating instead on timber holdings for its big sawmill at Bend, Ore., and Powell River Co., in British Columbia. M. J. ("Joe") Foley, who was in charge of the Florida operations is now executive vice president of Powell River.

Buckeye Cellulose Corp. now controls 569,000 acres of which 125,000 acres were acquired from a neighboring naval stores operator, as previously reported in PULP & PAPER.

Under the present management set-up, the Buckeye company has named Roy L. Westerfield as in charge of its forest land. Norman Gibbs, formerly manager of Rayonier Mills in Port Angeles, Wash., and Fernandina, Fla., mill is pulp mill consultant.

Actual working of the forest lands will be effected under a contract with Foley Lumber Industries, Inc., of which Lester W. Foley is president and general manager; John W. McCain, woods manager; and Harry R. Davis, Jr., wood production superintendent. The Buckeye company will determine management policy.

The operation includes handling of 1400 cattle which graze in 225,000 acres under fence. This cattle operation was set up by Brooks-Scanlon to convert to company use and control acreage at one time classified as "free range" and subject to uncontrolled fires.

Second Quarter Allocations For Expansion in South

Allocation of materials for NPA—approved expansion in the South for the second quarter of 1952:

Atlanta Envelope Co., Atlanta, Ga., for stationery manufacture, $250,000; Brown Paper Mill Co., West Monroe, La., for kraft paper and board, $3,362,000; The Buckeye-Cellulose Corp., Foley, Fla., for dissolving wood pulp, $28,979,000; Champion Paper & Fibre Co., at Canton, N. C., for bleached semi-chemical pulp, $1,697,643, and for paper, $4,473,742. Champion's mill at Hamilton, O., also was given clearance on $2,215,000 for printing paper.

Mead's division at Kingsport, Tenn., was given clearance on $4,258,000 for production of pulp and paper and $4,930,500 for pulp and paper at its Chillicothe, O., mill.

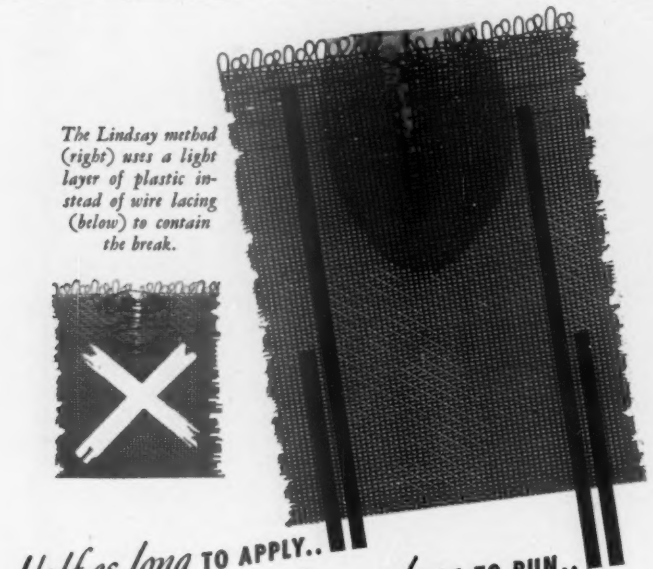
International's Southern Kraft Div. bleached dissolving pulp mill at Natchez, Miss., was given clearance for that $22,233,968 addition. Ecusta Paper Corp., Pisgah Forest, N. C., was approved for $1,500,000 for cellophane and fine papers; Gaylord Container Corp., Bogalusa, La., for pulp and paperboard, $9,510,400; and Kimberly-Clark Corp., for creped wadding at Memphis, $630,000. The St. Regis mill and conversion plant at Pensacola, Fla., was cleared for $10,000,000, and St. Joe Paper Co. Port St. Joe, Fla., for kraft paper and board for an amount not shown; Hudson Pulp & Paper Corp., Palatka, Fla., converting, $618,300; St. Regis Kraft Corp., Eastport (Jacksonville) Fla., for kraft paper, $16,750,000; Rayonier, Inc., Fernandina, Fla., for purified cellulose, $248,480; Container Corp. of America, Fernandina, for kraft container board $4,100,300; St. Marys Kraft Corp., unbleached pulp, $1,842,464; Southern Paperboard Corp., liner board, $4,970,000; Union Bag & Paper Corp., kraft pulp and paper, $20,017,000; Halifax Paper Co. Roanoke Rapids, N. C., for paper, $6,800,000; Manchester Board & Paper Co., Richmond, Va., for board and paper, $4,000,000; and West Virginia Pulp & Paper for projects at Covington, Va., $5,000,000 for pulp and $500,000 for pulp; and Luke, Md., $3,500,000 for pulp and $3,527,000 for newsprint.

Southland Holds Up On Expansion

While Defense Production Administration as of Feb. 18 approved the granting of a certificate of necessity to Southland Paper Mills, Lufkin, Texas, for an expansion of production in an amount estimated to cost $15,040,000, that company, in April, was still holding the matter in "abeyance," W. L. McHale, vice president and mill manager, told PULP & PAPER.

Hoberg Saves Fuel

Before Hoberg Paper Mills of Green Bay recently installed a Bailey pneumatic smoke control unit at its B power plant, a maximum average of 18,740 pounds of steam could be produced from one ton of coal in a six month period. One ton of coal is now producing 20,013 pounds of steam for the same period. Fuel savings amounted to 925 tons, or approximately $10,000.00.



The Lindsay method (right) uses a light layer of plastic instead of wire lacing (below) to contain the break.

Half as Long TO APPLY.. *Twice as Long* TO RUN..

Sometimes the advantage is even greater with Lindsay's new, proven method of repairing breaks in the edges of Fourdrinier wire cloth. A typical experience shows that several better repairs can be completed within five minutes, often lasting many days longer. You yourself can easily perform the operation at a very low cost. Ask us for the brief, remarkable details . . The Lindsay Wire Weaving Company (*Serving the Paper Industry Since 1903*), Cleveland 10, Ohio.

Lindsay WIRES FOR PAPER MILLS

LESS DOWNTIME . .

MORE PAPER

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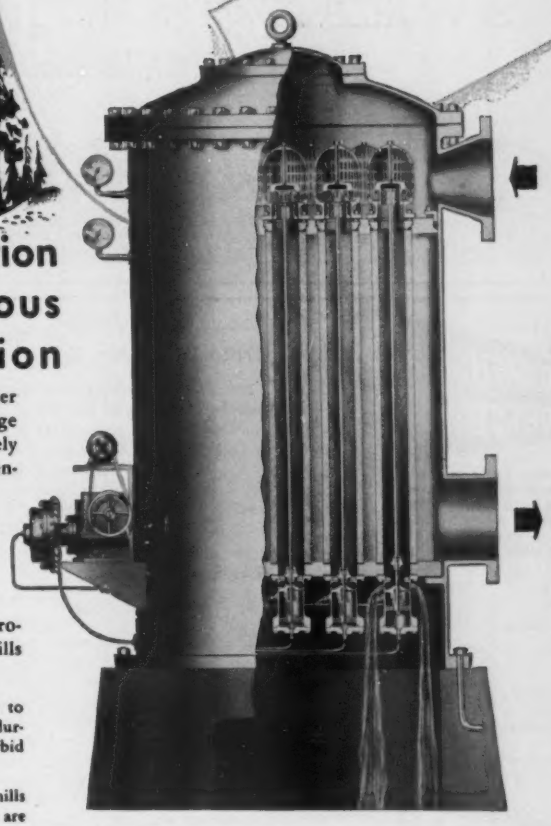
ADAMS

AUTOMATICALLY FILTERED WATER



Continuous protection for your continuous machine operation

Higher production goals of today's faster machines must be protected—continuously. Large volumes of water, carrying proportionately larger amounts of impurities, need more attention than ever before.

Clean, automatically filtered water can eliminate down time due to plugged shower nozzles, helps avoid mid-week shutdowns for washing clogged felts.

Experience with Adams Poro-Screen and Poro-Stone Water Filters in pulp and paper mills from coast to coast has proved:

1. Continuous filtration can be relied upon to remove all objectionable impurities, even during seasonal conditions of highly turbid supply.
2. Production continues in Adams-equipped mills when others using the same water source are shut down for cleaning.

Write for your copy of the new 20 page booklet on water filtration in the Pulp and Paper Industry, Bulletin No. 691.

R. P. ADAMS COMPANY, INC.

210 EAST PARK DRIVE, BUFFALO 17, N. Y.

WIRE CLOTH

FOR PULP AND PAPER MILLS

PHOSPHOR BRONZE-MONEL-STAINLESS STEEL

AVAILABLE IN A BROAD RANGE OF CONSTRUCTIONS AND ALLOYS FOR CYLINDER FACES, SAVE-ALLS, DECKERS AND THICKENERS, FILTERS AND WASHERS

Pacific Coast Supply Company

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A NEW DIMENSION IN FORESTRY

More and more forest industries, timber holders, logging operators and financial institutions are using our services in the following fields:

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C.D. SCHULTZ & COMPANY LIMITED
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VANCOUVER • SEATTLE

Deculator to Serve Great Lakes No. 2

Major expenditure so far approved this year by directors of the Great Lakes Paper Co., Fort William, Ont., is for the installation of a Deculator, manufactured by the Rotareaed of Canada, Ltd., for the No. 2 paper machine. This work will be carried out during the coming summer.

Another New Use For Multiwall Bag

Branded, multiwall paper bags are being used to package ground fish offal for freezing and western distribution by Yaquina Bay Fish Co., Newport, Ore. Use of fish heads, fins, skins, bones, and in some cases viscera for feeding fur animals is not new; but use of paper bags to contain the ground material during freezing and for protection in shipping is new. Commoner practice is to run the sloppy, ground material into large pans for freezing in blocks. The branded sacks give the product identity, and they eliminate labor in cleaning and handling pans.

Bags hold 50 lbs. of ground offal. They are three-ply, with inner ply heavy, waxed kraft; are manufactured by Crown-Zellerbach.

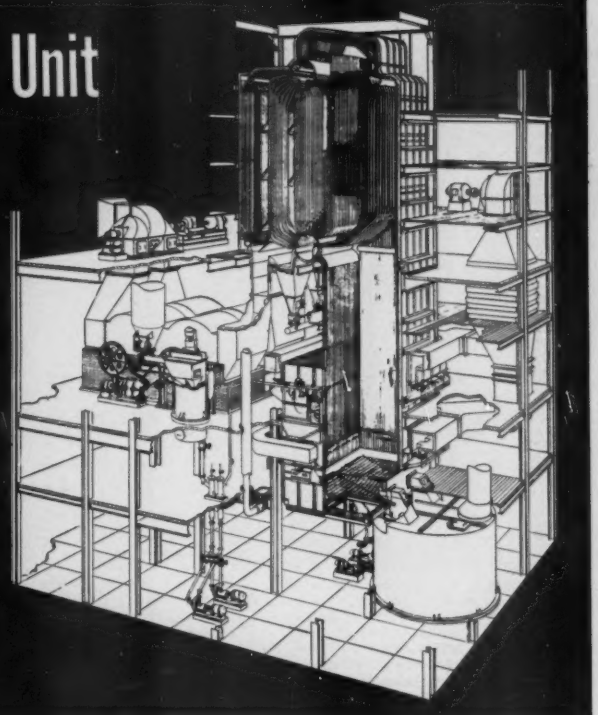
Celanese's New Projects In Canada

While Celanese Corp. of America continues to survey timber, power, transportation and other possibilities in British Columbia's Kootenay district with a view to establishing a $75,000,000 pulp and wood utilization industry there, the company's subsidiary Canadian Chemical Co. at Edmonton, Alberta, is making good progress with construction of its $50,000,000 plant for production of industrial organic chemicals.

This plant is to be in operation within a year and a half and will consume 75,000 gallons of petroleum gases from Alberta oil fields daily. High alpha cellulose for the operation will be supplied by the associated Columbia Cellulose Co. dissolving pulp mill at Watson Island, near Prince Rupert, B.C.

Plans for Edmonton envisage development of Canada as a major supplier of cellulose acetate. Filament yarn and staple fibre will be made available for sale to Canadian textile mills. In addition, the new plant will make more than sufficient quantities of formaldehyde and pentaerythritol to meet domestic demands. Acetone and acetic acid required in the cellulose acetate operation will also be produced.

Recovery Unit Operating Conditions at New High



There is no question but that the trend of the pulp and paper industry, during the past few years, is to higher steam pressures and temperatures.

C-E Recovery Units now in service and others soon to be placed in operation, will produce steam at pressures up to 875 psi and at temperatures up to 825 F – and this includes units designed for capacities up to 350 tons.

Naturally some of the leading companies in the pulp and paper field are sponsoring this trend as is revealed by the list of C-E Recovery Units – now in service, under construction or on order – shown at the right.

It is not surprising that Combustion Engineering–Superheater, Inc., having been in the forefront of progress and development of the modern chemical recovery unit, is identified with most of the high pressure – high temperature units now in service or in process of fabrication.

B-577

	Oper. Press. psi	Total Steam Temp.
Gaylord Container Corp.	875	825
International Paper Company (Southern Kraft Division)	860	825
Longview Fibre Company	825	750
Macon Kraft Corporation	865	800
Mead Corporation	875	825
St. John Sulphite Ltd.	870	825
St. Regis Paper Company	625	825

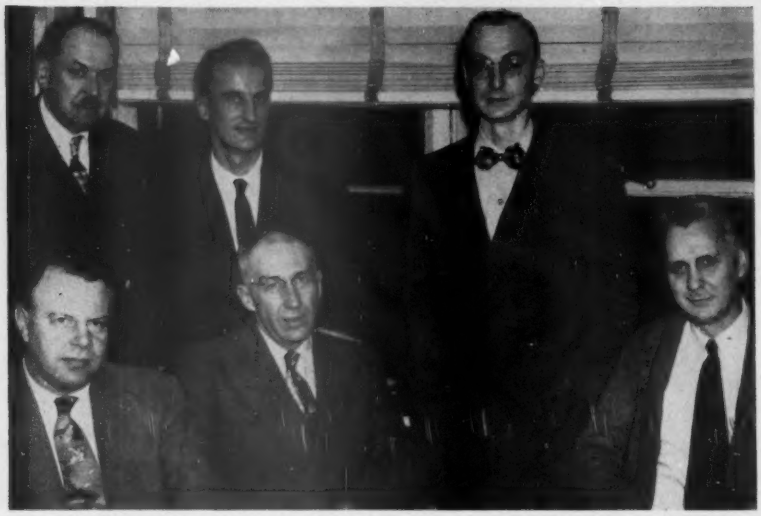
COMBUSTION ENGINEERING–SUPERHEATER, INC.

200 Madison Ave. • New York 16, N. Y.

PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS

Los Angeles—510 West 6th Street; San Francisco—116 New Montgomery Street; Seattle—Skinner Building

WORKING ON PULP MILL EFFLUENT PROBLEMS



THESE RAYONIER and Electric Steel Foundry technical men were pictured at Esco's Portland, Ore., foundry. Standing (l to r) are: BERNHARD WINIECKI, Supt. of Rayonier's Effluent Dept., Shelton, Wash.; CHESTER PEDERSON, Pulp and Paper Representative for Esco out of its Seattle office; and BAYARD DES CAMP, Assistant to Mr. Winiecki. Lower row, seated (l to r): JACK WILCOX, Manager of Process Division for Esco; JAMES MOORE, Sulfite Mill Effluent Foreman, Rayonier's Shelton Mill; and JIM GOW, Esco's Chief Engineer. In previous issues, we have carried articles reporting on Rayonier's burning of ammonia base waste liquor at Shelton and improved methods of ponding it at its Hoquiam, Wash., mill and long pipeline into the ocean at Fernandina, Fla.—all of which have been approved by authorities. Recent advances in stainless steels have been credited with making it possible to economically handle some of the acid liquors for disposal and Esco has pioneered in this work.

Sydney Ferguson Speaks Before NPTA

Said Sydney Ferguson, president, American Paper and Pulp Association, and Mead Corp. Chairman, addressing recent 49th annual of the National Paper Trade Association in New York: "Waste paper is over 32% of the raw material of the paper industry, substituting and saving woodpulp. The paper and paperboard industry are operating now at an average of over 90% capacity and the prospects are that the annual rate will exceed 90%. From 1899 up until 1941, the industry never ran as high as 90% due to dislocations in the industry from various causes. Beginning with 1941, the industry has run most of the time above 90%."

Westminster Paper Plans Pulp Mill

Westminster Paper Co. has applied for a forest management license to cover 500,000 acres of productive forest in the Prince George-Quesnel district of British Columbia, and if the provincial government approves the company plans to build a pulp mill there.

President E. M. Herb told PULP & PAPER that until the government announces its decision, the company's program would remain in abeyance. Mr. Herb intimated that Westminster Paper Co. would be joined in the forest development and pulp mill by a partner.

What's corn doing 35,000 feet up?

The casing of the bomb... possibly the high explosives inside... both require the use of special corn products in the manufacturing process. These, and hundreds of other corn products, have been developed by the continuing basic research in corn that serves all American industry... serves you.

Corn products in paper manufacture

Starches and adhesives... superior formula ingredients for such processes as beating, corrugating and laminating... and new techniques for using various corn products are being developed and refined by Corn Products Refining Company.

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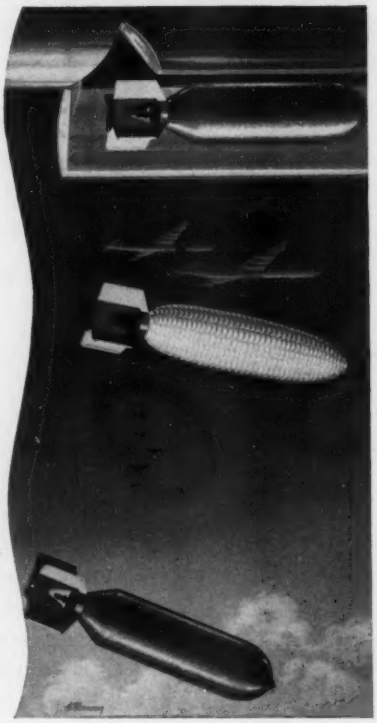
brand starch	brand starch	brand starch	brand gums



Efficient - - - economical handling of lime and salt cake at Hudson Pulp & Paper, Palatka Plant

Again, the Airveyor was selected and installed in another paper mill . . . the new 10 million dollar unit of the Hudson Pulp & Paper Corporation at Palatka, Florida. One of the newer paper mills in the South, which first started operation in November, 1947, has more than doubled its production.

The handling of raw materials, in an efficient and economical manner, was highly essential in such a modern operation. The unloading and storing of lime and salt cake was one of the problems to be considered. Two Airveyors are in use at Palatka. One system unloads and reclaims salt cake, and the other handles the pebble lime. The salt cake system unloads from box cars at rate of 10 tons an hour, conveying to storage bins; also conveys this same material from a truck-dump hopper to a bin. The same system reclaims from bins and delivers to a mixer. The pebble lime system unloads from box cars at rate of 7½ tons an hour and conveys to storage bins. It also reclaims at the same rate, for delivery to process.

When your problem is conveying, consult Fuller. We will be glad to study your conveying and make recommendations for the betterment of vour operations . . . without any obligation, of course.

FULLER COMPANY, Catasauqua, Pa.
120 So. LaSalle St., Chicago 3 — 420 Chancery Bldg., San Francisco 4

Fuller 26 YEARS' EXPERIENCE IN PNEUMATIC CONVEYING

A-144

Integration—Success Key

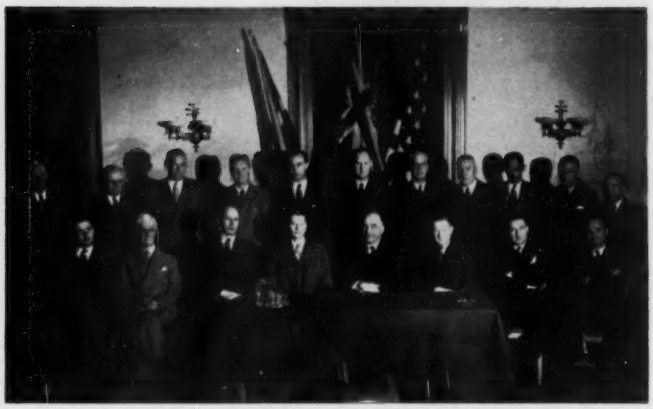
Integration is the key to economic success and permanent operation in the forest industry, according to Paul E. Cooper, president of Pacific Mills, Ltd., who addressed the Ocean Falls, B.C., technical section of the Pacific coast branch CPPA recently.

"Already on the Pacific coast there are several examples of forest industries integration," said Mr. Cooper, who listed multiple unit operations comprising sawmills, shingle mills, plywood plants, pulp mills, hardboard plants, plus various secondary operations consuming left-over wood and mark."

Alcohol Plant Resumes

Resumption of manufacture of 190-proof ethyl alcohol at Springfield, Ore. from sawmill waste wood has been announced by Charles B. Hudson, Jr., president of Oregon Wood Chemical Co., which leased a federally owned plant built 7 years ago. According to Mr. Hudson, the plant can make over 5 million gallons per year. Wood in fine pieces (presumably chips) are hydraulized with acid in huge percolators, converting cellulose to wood sugar by adding a water molecule to the cellulose molecule. A special yeast strain is grown on the resultant solution, after neutralization, for fermentation. Distillation results in production of alcohol.

OFFICIALS OF MERGED COMPANIES



Top Executives and Directors of MacMillan & Bloedel, Ltd., photographed following the historic first meeting of that company in Vancouver, B. C., after merger of H. R. MacMillan Export Co. and Bloedel, Stewart & Welch which created one of the world's great integrated forest industry corporations. Front row—H. S. Berryman, Vice-President, production; G. F. Laing, Director; Ralph Shaw, Vice-President, sales; Prentice Bloedel, Vice-Chairman; H. R. MacMillan, Chairman of the Board; B. M. Hoffmeister, President; G. D. Eccott, Vice-President, finance, and Secretary; Clifford Crispin, Vice-President, pulp division. Back row—S. D. Smith and B. M. Farris, directors, who retired as Vice-Presidents this month; E. S. McCord, Director; L. R. Scott, Director; M. Collins, Director; D. A. Baxter, Director; Gordon Farrell, Director; John M. Buchanan, Director; John Lecky, director; Douglas Dewar, director; Howard T. Mitchell, director. Several directors were absent from this group, including J. H. Bloedel, R. D. Merrill, Hon. W. C. Woodward, E. B. Ballentine, R. S. Laird, H. G. Munro, W. J. Van Dusen, Vice-Chairman, and H. H. Wallace.

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NEW from SKF

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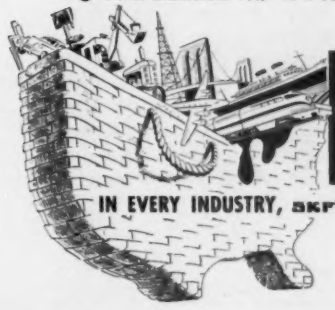
A new Unit Pillow Block, designed by SKF to meet tomorrow's needs of modern industry.

Here are the design features:

- SKF Red Seal, made of DuPont Fairprene, retains lubricant. Wiping action of the seal against the inner ring is practically frictionless.
- Rotating flingers exclude dirt.
- Set screws for ease of installation.
- Spherical outer ring compensates for initial misalignment.
- Alemite fitting for re-lubrication.
- Interchangeability with existing installations made possible by bolt hole spacing and center height features.
- Shaft diameters 1 3/16" to 2 15/16".

Hess-Bright Pillow Blocks

Detailed illustration of rotating flinger and RED SEAL—the extremely light tension contact seal.



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From now on, the name to remember in Unit Pillow Blocks is HESS-BRIGHT "SY"—manufactured in our plants, to the same high quality standards as all SKF products. Ask your SKF Distributor to show you the HESS-BRIGHT "SY"; or write SKF direct for complete information on this *newest* Unit Pillow Block.

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Jack Hanny Tells of Half Century in Industry

Some reminiscences of Jack E. Hanny, in picture, whose retirement as Crown Zellerbach's vice president, we announced in Mar. issue, have come to light. He now has moved to Portland, Oregon. He also has a farm between Camas and Vancouver, Wash.

Mr. Hanny began working in the West Linn, Ore., mills, where he later became manager. He also was manager at the big Camas, Wash., mill 16 years, until he became vice president of all operations in 1947. His first job at West Linn in 1902 was picking knots from a chip shake. He worked vacations from Oregon State College and Stanford where he earned engineering degrees in 1908 and 1911, respectively.

Following Stanford, Mr. Hanny became draftsman and engineer for Crown Columbia, a C-Z predecessor company at Camas. His assignments included the present grinder room, the old sawmill, No. 6 machine room, No. 3 warehouse and engineering for Nos. 6 and 7 machines. He was married to Miss Frieda Claussen at Camas Feb. 2, 1914.

In 1916, with Frank Sullivan, who recently retired from a converting plant management position at Camas, Mr. Hanny went to Ocean Falls, to help build the first papermill unit of Pacific Mills. Ocean Falls population was about 25 people, Mr. Hanny recalls.

"The plan was to start up on supercalendered book papers and kraft wrapping, but before long plans were altered to open up on newsprint. Within two years we had four machines running—numbers 1, 2 and 3 on newsprint and No. 4, imported from Coos Bay, Ore., on kraft wrapping. With one crew working, another taking the boat back to Vancouver and another crew coming, we accomplished the construction and installation in remarkably good time, for those days."

He tells of emulating pioneers on the Pacific Mills job by chewing tobacco on the sly, against Mrs. Hanny's wishes, and had the tobacco charged at the company store as "fish bait" until Mrs. Hanny caught on. He promptly abandoned the habit.

Mr. Hanny stayed at Ocean Falls ten years as engineer and finally as general superintendent under Resident Manager Dave Stenstrom, who died just recently while planning Celanese's second mill in British Columbia.

As West Linn manager, 1926-31, he directed changes that brought No. 9 to a then "amazing" speed of 1,000 f.p.m., and at Camas, 1931-47, he took the mill off newsprint, transforming it into what has been called the world's biggest "specialty mill." He built capacity from 250 to 475 tons in that period and, of course, while heading all operations, had an important role in pushing it to 700 tons.

His recollections of Camas in World War II days when, he says "we hired 25,000 men" in the heavy turnovers, are entertaining.

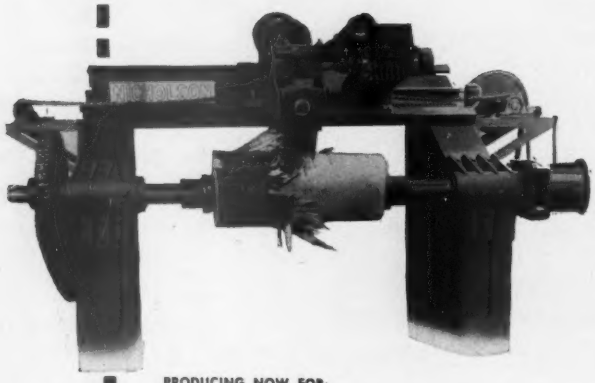
"One man we had was involved in the Teapot Dome scandal; another was a rich Englishman hiding from an American woman who wanted to marry him. Several murderers paused at Camas, and moved on. We had a lot of Southerners, mighty good workers, many of whom stayed. Others, well-heeled, went back home to pay off their land and live off tobacco and razorback hog income. Many went home twice a year—to plant and to harvest tobacco. One man offered to solve the liquor shortage, if I would provide him with a still and sugar and keep the 'revenooers' away."

G.E. ANNOUNCES NEW LINE FHP MOTORS

A new line of fractional horsepower motors embodying an entirely new concept of motor design and manufacture has been announced by General Electric Co.'s Fractional Horsepower Motor Department. Designated as "Form G," new motors are result of nearly decade of development engineering and research, and incorporate many radically different and advanced design features. According to G-E engineers who worked on project, Form G motor weighs as much as 51% less per horsepower than models it replaces and is considerably smaler in size. At same time, its versatility of application has been broadened and appearance modernized.

NOW A PRODUCTION LINE BARKER

For Short Log Pulp Operations, Saw Mills and Plywood Mills



This NEW proved machine REMOVES ONLY THE BARK, none of the wood, and will clean up knotty, fluted logs. For pulp mills the Nicholson 52 Eleven Barker is just right when followed by a splitter and then the chipper or other reduction means. There is direct semi-automatic handling from the log haul or storage through the barker to the next operation. Proved on many species of timber. Patents pending. Low initial investment. Reduced maintenance. One man operation.

PRODUCING NOW FOR:
Everett Pulp & Paper Co.
Simpson Logging Co.
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If you have a barking problem ask us to check it . . . at no obligation of course.

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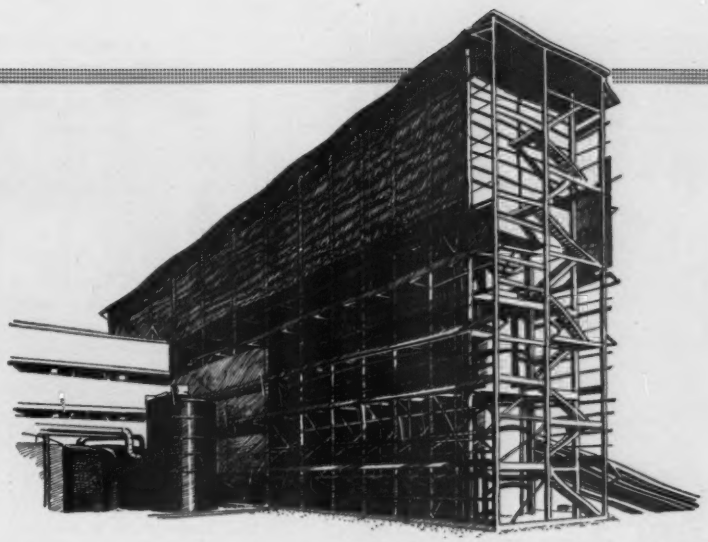

A YEAR OF CONSTRUCTION

A major expansion program, now nearing completion, substantially increases the company's productive capacity. St. Regis products include sulphate pulp, kraft paper and board, multiwall bags, a wide range of printing and publication papers, industrial and decorative plastics. Shown above is an enlarged digester building at the Pensacola, Florida, mill.

SUMMARY OF CONSOLIDATED INCOME

	For the Years Ended December 31, 1951 and 1950.	
	1951	*1950*
Net Sales, Royalties, and Rentals	$195,955,617	$154,789,186
Cost of Sales and Expenses	$159,845,270	$134,376,511
Operating Income	$ 36,110,347	$ 20,412,675
Income Credits	$ 4,756,969	$ 1,362,283
Gross Income	$ 40,867,316	$ 21,774,958
Income Charges	$ 2,126,473	$ 1,626,088
Net Income Before Provision for Federal and Foreign Taxes on Income	$ 38,740,843	$ 20,148,870
Provision for Federal and Foreign Taxes on Income	$ 21,944,809	$ 8,525,126
Net Income	$ 16,796,034	$ 11,623,744
Dividends Paid		
Preferred Stock	$ 708,193	$ 752,105
Common Stock	$ 4,136,531	$ 3,619,500

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For want of a bearing an entire plant might have shut down!★

★ *An example of what we mean by "Better Bearing Service"*

Not long ago, one of our big pulp mill customers phoned us in a hurry. He needed immediate replacement of a bearing on the chipper. It was a little-known bearing. There were none on the West Coast—and to our knowledge, only 15 in the entire country. We phoned east; located an available bearing. It was shipped by air . . . we were informed of flight number and arrival time . . . met the plane with our own private plane . . . flew it immediately to the mill. Two hours later—and it would have been necessary to shut down the entire plant! That's "Better Bearing Service"—as near as your telephone!

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DON LIVINGSTON (seated), recently appointed assistant general manager of Esco, Ltd., Vancouver, B. C., is shown here with ART BATES of the company's sales staff. Mr. Livingston specializes in Esco's process equipment and British Columbia's current wave of expansion in the pulp and paper field has kept him busy. BEN NYLINE, general manager of Esco, Ltd., returned recently from a month's visit to Chicago and other eastern cities.

Stadler, Hurter Designed Graphic Panel at School

The Ecole Provinciale de Papeterie's paper machine graphic panel which was one of the graphic panels described and shown in a series of pictures in our March 1952 issue was designed by the instrumentation department of Stadler, Hurter & Co., consulting engineers of Montreal and built by Peacock Brothers of Town of LaSalle, near Montreal. We erroneously reported the panels were designed by Peacock Brothers for Stadler, Hurter and we are happy to correct this.

Incidentally, the article, first ever published of this nature on this new trend toward graphic panels in the pulp and paper industry, attracted a great deal of interest and instrument companies have ordered a large number of reprints of it.

"By the way, there are two graphic panels at the school," writes A. M. Hurter.

"It should be noted that the Ecole Provinciale de Papeterie graphic panels differ from the usual graphic panels in that no remote control valves are used. The actual piping under control is within the panel. This system was used since the piping is relatively small and the piping layout permitted such an arrangement. The cost of remote control valves was thus avoided and for a school maintenance simplified. Credit should be given Mr. Bellefeuille, the piping contractor, who did a very fine job of installing the piping within the panel to the precision required for a panel of this type."

Ladies Night at Kalamazoo

The Michigan Superintendents Division will be host to the ladies at a dinner-dance May 3, at Hotel Harris, Kalamazoo, Mich. The toastmaster will be Howard Benderberg, Kalamazoo, affiliates representative. William S. Astle, Michigan Paper Co., Plainwell, is chairman of the ladies night committee.

Canadian Glassine Being Built at Quebec

PAUL E. HODGDON, President of Deerfield Glassine Co. of Massachusetts is President of new Canadian Glassine Co., Ltd., being built at Quebec.

A glassine and greaseproof paper mill with an estimated production of 4000 tons per year is under construction in Quebec City, Quebec. The name is Canadian Glassine Co., Ltd., and it is owned by Deerfield Glassine Co., Monroe Bridge, Mass., with Anglo-Canadian Pulp and Paper Mills, Ltd. having a minority interest.

The project will cost approximately $1,000,000, and contractor for the plant is the R. E. Stewart Construction Co., Sherbrooke, Quebec. The 108-inch reconditioned Beloit Four drinier with which the mill will be equipped is designed for glassine and greaseproof papers and other lightweight specialties. Other equipment will include Waterous Bertram-type beaters, high speed E. D. Jones & Sons jordans and Cameron rewinders.

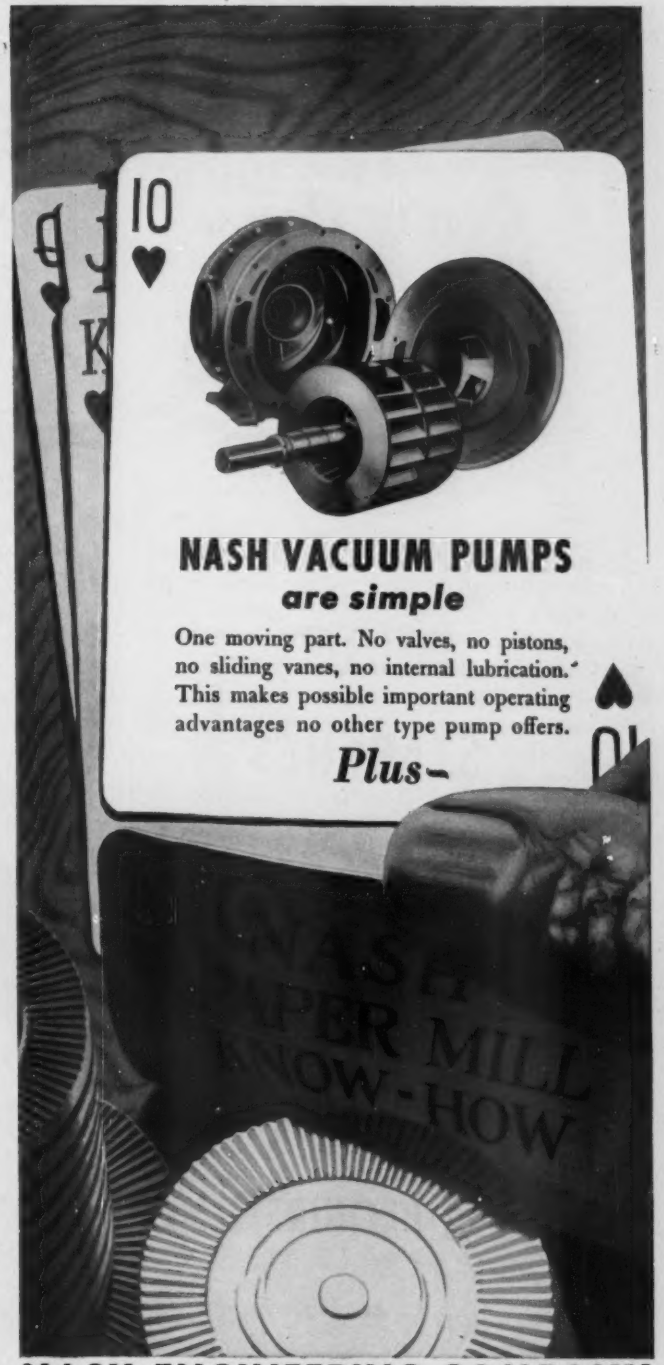
Deerfield Glassine Co. is headed by P. E. Hodgdon, president and W. A. Wylde, vice president. Mr. Hodgdon will be president of Canadian Glassine, and W. E. Soles, assistant general manager of Anglo-Canadian, will represent his company on the board. Other officers and members of the board will be from Deerfield.

Sales for the mill, to be in production by June will be by the Ager McLernon Co. of Montreal.

Wheelwright Division Increases Facilities

Shipping facilities are being doubled and warehouse space substantially increased at Wheelwright Division of The Mead Corp., North Leominster, Mass. A new 1952 one-story addition to the warehouse, which was new in 1949, will provide space for more converting, trimming, wrapping and finishing as well as storage.

"Our outlook for 1952 is optimistic both as to sales and mill output," said Howard W. Turnstall, president of Wheelwright Paper Inc.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One moving part. No valves, no pistons, no sliding vanes, no internal lubrication. This makes possible important operating advantages no other type pump offers.
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Centrifugal Fire Pumps Capacities: 500-2000 G.P.M.
Builttogether Centrifugal Pumps Capacities: 5-1000 G.P.M.
Paper Stock Pumps Capacities up to 2500 G.P.M.
Split-Case Centrifugal Pumps Capacities: 50-50,000 G.P.M.
Vertical Angle Flow Pumps Capacities up to 100,000 G.P.M.
Frame Constructed Rotary Pumps Capacities: 1.3-450 G.P.M.
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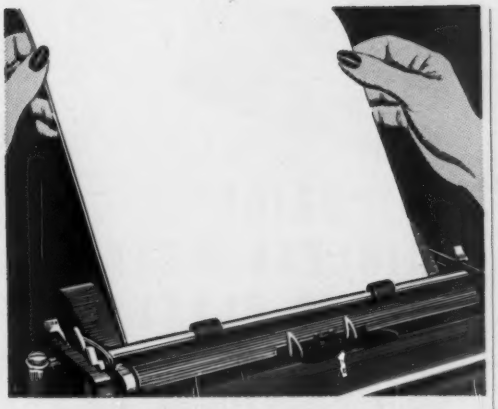

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Leading paper mills depend upon Butterworth Calender Rolls to give a smooth surface to paper of all types. Their own experience has shown them that Butterworth Rolls do the calendering job they're looking for at minimum operating cost.

Try the test many mills have made. Put a Butterworth Roll in your stack. Examine the fine finish. Time it in operation. Note the extra hours of service it gives without refill or turn-down.

Butterworth Calender Rolls are pretested for hardness, smoothness and density and are made according to your specifications. The rolls are locked on the shaft under tremendous pressure. Cannot slip. Cannot come loose. We will also refill your present rolls. Write us today on your calendering needs.

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FABRI-VALVES are complete weldments from rolled plate, thus eliminating any porous areas and insuring proper thicknesses where designed and are therefore superior to cast types.

Designed to control the flow of heavy paper stock and liquor solutions with a minimum of maintenance. Made from all types of stainless steel, monel or any combination. Contact nearest agent.

Sizes 2" to 24" in stock.
Special orders in 30 days.

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8 Million Virginia Seedlings

More than 9,000 acres of new trees will be added to the forests of Virginia before April through planting of 8 million tree seedlings made available for winter and spring planting by Virginia State Forest Nurseries. 800 private landowners and industries are expected to participate.

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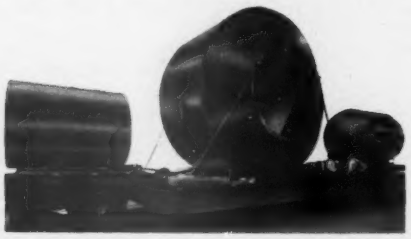

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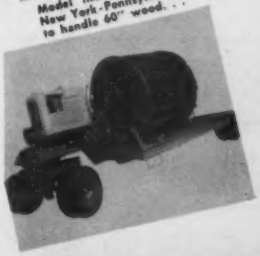

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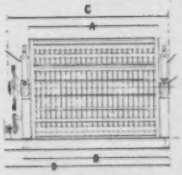

APPROXIMATE GENERAL DATA					
SIZE	"A"	"B"	"C"	"D"	ENGINE
48"	5'5"	6'5"	8'3"	15'0"	25 H.P.
50"	5'7"	6'7"	8'5"	15'0"	25 H.P.
55"	6'4"	7'8"	8'10"	15'0"	25 H.P.
60"	6'9"	8'1"	9'3"	16'0"	50 H.P.
63"	7'0"	8'4"	9'6"	17'0"	50 H.P.
72"	7'7"	8'11"	10'1"	18'0"	50 H.P.
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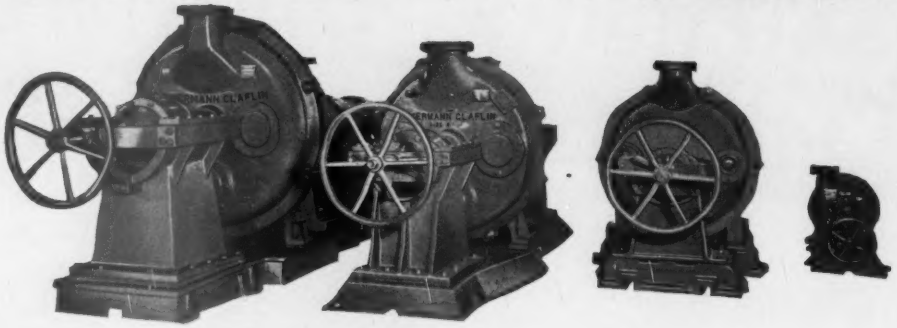

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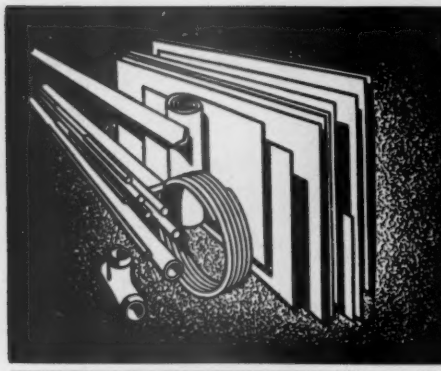

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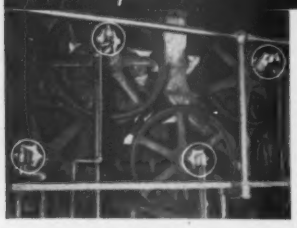

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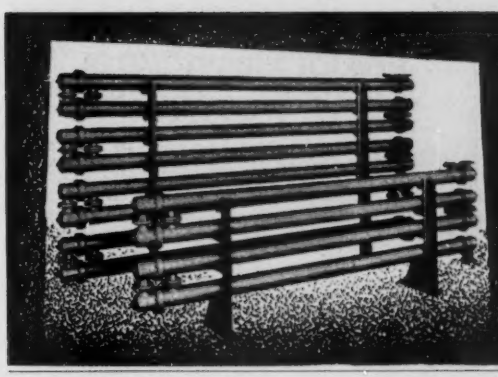

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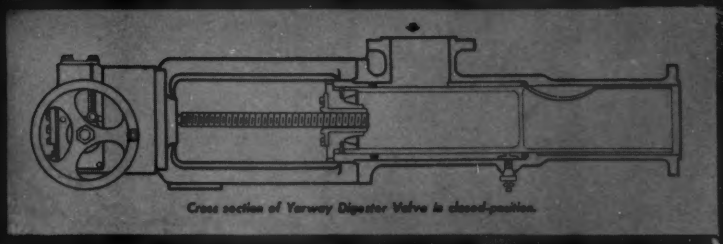

Cross section of Yarway Digester Valve in closed position.

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- FREE DISCHARGE
- LOW MAINTENANCE
- FAST OPERATION
- REMOTE CONTROL

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